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Notes from the Profession

The Inter-Proximate Spaces.

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THE inter-proximate spaces are those openings which appear between the proximating surfaces of the teeth when in position in normal arch. These are often spoken of as the V-shaped spaces.

The teeth made contact, each with its neighbor on each proximate surface with the mesial tooth, with the mesial surface; and with the distal tooth with its distal surface. However, the wisdom teeth have no distal proximating tooth, and, therefore, only a mesial proximating surface. The central incisors, both upper and lower, approximate each other by their mesial surfaces. All of the others approximate a distal surface by their mesial surfaces, and a mesial surface by their distal surfaces. The inter-proximate surfaces include all of that space left open between the crowns and necks of the teeth; or the space bounded by the teeth on the mesial and distal, and root-wise by the rim of the alveolar process. In the normal conditions this space is entirely filled by the soft tissues of the septum of the gum, so that in the sense of emptiness there is no space. The normal inter-proximate space, then, is bounded by the hard tissues. The base of the space, or the broadest portion, rests on the rim of the alveolar process, and it tapers to an acute angle at the point of contact of the proximating teeth. This contact point is very near the occluding margin in teeth of the best form and arrangement. But in poorly formed teeth, or those that are thick-necked and much rounded toward the occluding surfaces, it is sometimes considerably removed toward the gingival line; perhaps half the length of the crown. This is abnormal. The crown of the teeth in such cases are much rounded and generally imperfectly developed. The widest inter-proximate spaces are between teeth with strongly belled crowns, *i. e.*, teeth with the occluding surfaces of the crown broad as compared with their necks.

The average upper dental arch from the distal surface of the left third molar to the distal surface of the right third molar, and following its curve, measures about five inches. If we measure the several teeth that make up the dental arch from mesial to distal at their contact points, the sum of their measurements will be the same. A measurement of the same teeth, at their necks, gives an average of about three and a half inches. Therefore, the sum of the inter-proximate spaces is about one and one-half inches. This gives an average of one-tenth of an inch to each inter-proximate space. These measurements are sufficiently accurate, and small fractions are avoided. There is, however, much difference in the width of the inter-proximate spaces between the several teeth of the same denture. The space between the central incisors is larger than that between the lateral and central, or that between the lateral incisor and the cuspid. The spaces between the bicuspid are usually larger, while those between the molars are the largest of the denture.

These spaces are said to be V-shaped from base to apex, but generally they only approximate the V-form. They vary much among different dentures, and among the several spaces of the same denture. The space between the central incisors has

very nearly the typical form, and its two sides are alike. The space between the central and lateral, and that between the lateral cuspid, have their distal side nearly straight, while the mesial side, formed by the distal surface of the incisors, is curved. All of the other spaces have both sides variably curved. That is to say, the sides rise from the base nearly parallel, then curve toward each other till the contact point is nearly reached, when the curve is reversed and they approach less rapidly, reaching the contact point. These curves are much greater on the mesial side (that formed by the distal surface of the teeth) than on the distal sides (formed by the mesial surface of the teeth). The form of the space from buccal to distal is often smoothly rounded, but is more generally complex. The greater number are flattened, or even present concave sides in the central part near the base, and gradually become rounded as the contact point, or apex, is reached. The lingual and buccal margins of the space differ materially in their curves. These differences can be well learned only from study of the space in the skeleton, and the proximate surface of teeth out of the mouth, and comparisons with teeth in the mouth, together with the inter-proximate gingivæ. The forms of these spaces are not well learnt from their study in the mouth alone.

It has seemed to me the dental profession has been very slow to recognize the importance of these spaces and their maintenance in proper form, with their contents, the septum of the gum, or the inter-proximate gingivæ, in good order. The space is necessary to the health of the gingival septum and the periodontal membrane; and the health of these is necessary to the health of the teeth. There is, perhaps, nothing in which the dentist has so continuously and persistently ignored the comfort of his patient as in the violence he has done to the inter-proximate space and the septum of the gum tissue, tho many have learnt to avoid this and to maintain the inter-proximate spaces in reasonably correct form and the contained gum tissue in health. They have done so from individual observation of the fact that when teeth are allowed to drop together, obliterating this space, or that when the form is at fault and the gingival septum unhealthy, their patients are usually in dire discomfort. Certainly they have not learnt it from literature. Much has been gained in recent times by the greater endeavors in contouring badly decayed teeth.

What we want in all cases is contouring for the purpose of restoring the proper form of the inter-proximate space rather than contouring for the sake of the form of the tooth. I wish to express here directly what some writers seem to have been reaching after in an indirect way when they have endeavored to explain that in contouring it was not always necessary to restore the exact original form of the crown. Many times I have seen otherwise excellent specimens of contouring for the sake of the tooth form that failed to give comfort to the patient and to preserve the tooth from further decay because the contour did not preserve the proper form of the inter-proximate space. This caused lodgment of food by the violence done to the gingival septum, which in turn formed a pocket for lodgment and decomposition of débris, bringing about a renewal of caries at the gingival margins. If, in these cases, the operator had had the idea that the contour of the inter-proximate space was the more essential point, he would not have failed.

If the teeth were originally of really good form and retained strength enough to support the necessary filling, the claim that the form should be perfectly restored is sound; and it should certainly be followed out. But how many are there who can properly determine what the original form was? How many have studied the anatomy of the teeth closely enough, and possess the mechanical ability to perfectly restore the original symmetry of the lost part? Human dental anatomy has never been a study in our dental schools till I introduced it into the Chicago College of Dental Surgery two years ago; and then it had to be pursued without proper guides for the student. To-day our dental literature does not contain a careful and complete description of the surface, or the surface markings of the teeth; nor any single one of them. There is no guide presented to the student by which he is en-

abled to learn tooth forms with accuracy. I was especially glad to read this sentence from Dr. Harlan in the discussions of this subject before the First District Dental Society of New York: "The trouble is, gentlemen, the dental profession * * * is unfamiliar with the ground-work of mechanics. They do not understand dental technique, they are unfamiliar by practice and experiment with the shapes of the teeth, and it is in consequence of this unfamiliarity, it is in consequence of this misunderstanding of correct mechanical principles, that the miserable apologies for contour work are spread over this broad land."

I can most heartily adopt this sentence, and wish I could emphasize it in such a way as to call attention strongly to the facts stated, and induce every dentist to look carefully for the fault that lies at the bottom of so much of the failure in the so-called contour filling, of which complaint is so justly made. Whatever the faults in practice may be, the principles of perfect restoration of form is correct wherever the original forms were good; and the trouble is in the failure to understand, and reproduce these forms. These difficulties should not continue to baffle men who are striving for the greatest good of their patients.

Now, what is the most important point in contour filling? Where do we most generally find failure to occur? If I have observed aright, and have read the observations of others aright, the greatest amount of failure is from re-appearance of caries at the margins of the proximate surfaces. Much has been said, especially by those who have opposed contour filling, about the inability of tooth substance to bear the strain of mastication on large contoured surfaces. Is this correct? I will ask each one of you for your observation and experience on this point. Do you generally see contour fillings tumbling out from failure of the strength of tooth substance, or do you much more often see failure from the re-appearance of caries about the proximate margins? Perhaps every dentist can recall cases in which the strength of walls has been misjudged, and in which the whole structure has gone to pieces with a crash, like the deacon's one-hoss shay. I saw two such of my own a few days ago—bicuspid, the lingual cusps of which suddenly gave way under a caramel after having stood fourteen years. But I think the experience of all will be that by far the greater number of the failures are due to the re-appearance of decay at the margins of the filling on the proximate surface. Decay on the proximate surfaces always mean one of two things, or both combined: conditions of the mouth which especially favor caries, or a bad condition of the inter-proximate space. When decay occurs, after the age of twenty-five or thirty, it is in most instances the direct result of a bad condition of the inter-proximate space.

In this estimate of conditions, fillings with imperfect margins must be excluded. We cannot expect fillings of any kind to stand if the excavation has been imperfectly done, if the filling material is not perfectly adapted to the walls, or if the finishing is faulty. Any of these imperfections invite the re-appearance of caries, and are a fruitful cause of failure. Otherwise than this bad condition of the inter-proximate space is generally due to a faulty form which invites lodgments of food and débris to undergo decomposition and destroy the inter-proximate gingivus; or the primary faulty condition of the soft tissues in which they fail to fill the space, and thus leave a pocket for decomposing substances. The health of the inter-proximate gingivus is a primary requisite to the freedom of these surfaces from caries, whether it be primary caries, or secondary caries, following a filling of any kind. Nature never designed that an open space should exist between the teeth. The inter-proximate space should be filled with gum tissue to the point of proximate contact. It is always so in normal conditions, and should always be so after a contour filling has been made. It is as much the duty of the dentist to see that the inter-proximate space is filled with healthy gum tissue, as it is to fill the cavity. My observation leads me to believe that there is a great and persistent neglect in this by many operators who otherwise make very fine contour fillings.

Too frequently the inter-proximate gingivus is destroyed in wedging, or torn, or

cut away in the effort to get clear space for filling, or if any is left it is mutilated beyond recovery in the process of finishing. Then after a few years the patient returns and the operator wonders why a case in which he was so careful with every detail should again decay at the gingival margin, just at the most difficult point to repair. Does he then notice that the inter-proximate gingivus destroyed in his operation has never recovered, or that there is only a little scar tissue, and that the space is habitually nasty? How many of you have been in the habit of noticing the fact that when the primary decay occurs close to the gingival line on the proximate surfaces of the teeth of your older patients, just in the positions in which you find them about your contour fillings, the inter-proximate gingivus has previously been either destroyed, or so badly injured that it has not filled the space. Those of you who have not noticed this should study it carefully. Generally you will find the proximation of the teeth was originally faulty, or has become so from some movement of the teeth, and the gingivus has been injured by the crowding of food till a permanent receptacle for débris has been formed. Study these cases carefully, the form of the contact of the proximation, and the space, together with the occlusion. The study will teach you a good lesson on forming inter-proximate spaces, and proximate contact, in your contour work. We want a proximate contact that will not leak food in between to the extent of breaking down the inter-proximate gingivus. I will not attempt to give any rule for forming this contact—no two cases are alike, and each individual case must be studied for itself. Really no rule can be given that will be applicable to all cases. The surfaces of the adjoining teeth should always be made to fit together closely near the occluding margin, and be of such a form as best to prevent food from wedging down between them. This should be done independently of the former contour of the teeth, if that contour has not been of the best. See to it that the cusps of the opposing teeth do not so strike as to force the teeth apart and destroy contact, for in this case the contoured proximate surface, with its space larger near the gingival line than at the occluding surface, becomes a catch basin to gather débris favoring decomposition, and is really worse than straight sides reaching to the gums which remain open. It is unwise to contour an inter-proximate space when contact cannot be maintained, and occasional cases present themselves, especially when some teeth have been lost and movement which will cause loss of contact will certainly occur. In such cases it is better to make flat fillings at once, rather than have an open space that is widest at the gingival margin. However, there are exceptions to the rule; these are found in cases where the integrity of the arch has been broken by the loss of teeth, or when the cusps of the opposing teeth are forcing the teeth apart. Whenever it is possible to maintain the contact it should be done, and the filling will succeed if it is otherwise perfect. If cases of final loss of contact occur occasionally under seemingly favorable conditions resulting in failure after filling, it should be remembered that the same occurs in teeth that have never been filled; resulting in bad conditions of the space, and caries, late in life. The contour of the occluding surface is much less important. It may be made a thing of beauty in its lines and symmetry, or it may be merely a club-ended tooth; and in either form may serve its purpose fairly well.

Generally, there is no great necessity that the occluding surface be filled out to the original contour, provided the proximate contact is well restored. The disto-lingual cusp of the first upper molar may be cut away, making a three-cusped tooth, if the remaining tooth substance be considered too frail to support it, and the tooth will do well, but not full duty. Other teeth may be changed in form, diminishing the amount of occluding surface, but in so doing a form should always be given to the inter-proximate space that will secure the inter-proximate tissues from damage, and thus maintain the cleanliness of the proximate surfaces. Tho such teeth may not do full duty, they will be comfortable, and will maintain the integrity of the arch.

—*Dental Review.*

Deformities of the Jaw.

HEREDITY IN ITS RELATIONS TO IRREGULARITIES. FROM DR. EUGENE S. TALBOT'S
IRREGULARITIES OF THE TEETH.

IT is a fact universally recognized that various morbid conditions and peculiarities of structure are often transmitted from parent to child, through many generations. This law of heredity is almost universal in its application, and its influence may be either enhanced or depreciated through successive or alternate generations, till we have, on the one hand, a total disappearance of the hereditary impression, or, on the other, an increase so great that the condition becomes incompatible with the life of the individual. This variation is a fortunate circumstance, as by it the human race is protected from destruction.

This plan of variation is powerful for good or evil, according to the environment of the individual, or of the family to which he belongs. This fundamental evolutionary law of heredity is nowhere more manifest than in the case of perversions of development of both internal and external organs, either embryonal or post-natal, and it is a powerful factor in the production of deformities of the jaw and irregularities of the teeth. Not only does this hold true in the case of general irregularities due to maxillary deformities, but it also applies to malformations of individual teeth. Thus, the author has observed in a family consisting of mother, daughter and granddaughter, a peculiar fissured condition of the enamel on the labial surface of a left superior lateral incisor.

It is not uncommon for a child to possess peculiarities of the teeth of one jaw resembling those present in the father, while the other presents irregularities of development precisely identical with those present in the mother; again, one parent may transmit peculiarities of maxillary development, while the other transmits characteristic appearances of the teeth. Much has been said of late regarding the influence of ante-natal impressions on the development of deformities, and if the claims advanced be half true, it is probable the teeth and jaws may occasionally suffer their share of the resulting detriment. Evidence of dental deformities from this cause is, of necessity, difficult to obtain. A case is recalled, however, in which a peculiar condition of irregularity of the teeth was attributed by the mother to her constant worry, during gestation, lest the coming child should have teeth as irregular as her own. When dentition was finally completed in the child, the arrangement of the teeth was identical with those of the mother. This is not advanced as a positive evidence of ante-natal impressions, but because of its suggestiveness.

Notwithstanding what has been said regarding the influence of hereditary, it must be confessed we are often absolutely unable to determine the precise degree of influence exerted by it, even when we are convinced it is a powerful factor. It is evident to any one, on reflection, that the causes which will produce deformities independent of hereditary influences will also prevent the latter from acting as they otherwise would.

The teeth are creatures of circumstances, *i. e.*, they are developed independently of the alveolar process, hence their order of development and the resistance imparted by other teeth and roots all combine to produce irregularities; local causes produce a majority of irregularities, and modify formations which might otherwise be the exact counterpart of those presented by the teeth of the parent.

The following cases in practice illustrate this theory. In one family under my observation the father's jaws are well developed, and contain large, strong teeth. The mother's jaws are small, and the teeth regular in the lower maxilla. In the upper maxilla the central incisors are regular and in normal position, but the cuspids, bicuspid and molars have come forward and filled the spaces occupied by the laterals, which were extracted at the age of thirteen. Two sons (their only children) have lower jaws and teeth closely resembling the mother's. The upper jaws and teeth of both resemble the father's in size and strength, but, unlike the father's, they are very irregular in position. These irregularities are not due to limited

space in the jaws, which is sufficiently large to admit the teeth with regularity. This tendency to irregularity of position is apparently a marked inheritance from the mother.

It is questionable whether exact counterparts of irregularities are ever inherited from parents. Various local interferences and conditions will influence this some way. Transmissions of small jaws and of peculiarities of individual teeth are, however, common.

In 1864, Messrs. Cartwright and Coleman,* of London, examined some two hundred skulls in the crypt of Kythe Church, Kent, which had been deposited there for centuries. They found the alveolar processes and teeth perfectly developed and formed.

In 1869, Mr. John R. Mummery, of London, read a paper before the Odontological Society of Great Britain, in which he gave a report of his extended researches including over three thousand skulls of ancient and modern uncivilized races, and concluded that the early and half-savage people were freer from dental irregularities than modern. Dr. Nichols, of New York, has examined the mouths of thousands of Indians and Chinese, and says that, with but one exception, he never found an instance of irregularities in either of these races.

I can confirm the statement of Dr. Nichols as regards the Chinese, having examined the teeth of many of them on the Pacific coast. The above reports, together with the testimony of other investigators, show that ancient uncivilized and nomadic barbarians have perfectly-shaped dental arches.

The interesting circumstance that irregularities occur more frequently now than formerly, and among people living in new countries, would suggest the idea that irregularities caused by heredity may result from the intermarriage of different nationalities, the offspring of such unions partaking irregularly and in different degrees of the racial peculiarities of maxillary development of either or both parents. It is probable that the varying character of the food, and the abuse of the teeth incident to the depraved hygiene of modern civilization, have much to do with dental malformations. Again, the higher the evolutionary type of individuals, the more imperfect the teeth and jaws become. The nearer the savage, or at least the rustic, and the farther removed from refined and civilized man, the better the teeth. As the animal becomes less and less dependent on his jaws and teeth for a livelihood, the less perfect these structures become, and after the lapse of many generations marked variations and imperfections of development are logically to be expected.

In conclusion, it may be said that in our studies of dental and maxillary irregularities, we must not only take into consideration the transmission of individual peculiarities, but the all-pervading and general evolutionary law of heredity.

ARRESTED MAXILLARY DEVELOPMENT AS A CAUSE OF IRREGULARITIES.

The upper and lower maxilla are developed from distinct ossific centers, those of the lower being the first of the bones of the skeleton to exhibit ossification; not only do each of the maxilla develop independently, but each maxillary is developed in two lateral halves, which subsequently unite by fusion, the line of fusion becoming finally variably obliterated. The teeth, already laid down at birth, develop and grow independently of the maxilla and alveolar processes.

Under such circumstances of development and growth it is obvious that perfect harmony must exist, else deformity is sure to ensue, *e. g.*, the separate halves of the maxilla must have a corresponding degree and mode of development, else irregularity is inevitable. In the same way a difference in the form of the upper and lower jaws may affect the regularity of the teeth.

A lack of correspondence between alveolus and jaw, or jaw and teeth, is almost certain to cause serious deformity. The greater deformities, caused by inharmonious development, such as cleft palate, harelip, underhung jaw, and protruding upper

* Kingsley's "Oral Deformities."

jaw, are sufficiently familiar, but their relation to irregularities is not generally appreciated. Violate the general development of the law of harmony, and we may have deformities which, tho varying in degree, are precisely identical in kind. When the fact that the fetus is practically developed in two lateral segments is taken into consideration, all deformities which exist, or a predisposition to which exists, at birth become easily understood.

There is a marked difference between the upper and lower maxillary in respect to congenital and acquired deformities. The upper is exposed to pressure and many extraneous influences caused by the arrangement of the various bones with which it articulates—there being eight of these articulations. The lower maxilla is developed free and independent of the other bones of the face, and, as a consequence, is in nowise affected by any lack of harmony which may exist between them. Thus, the fact of the relative infrequency of deformity or imperfect development of the lower maxilla, as compared with the upper, is easily explained. There is another plausible explanation for this difference: the upper jaw, being fixt, is not actively exercised, and, consequently, has no special stimulus to development; the lower jaw is mobile, and acted on by powerful muscles in such a manner that an active blood supply becomes necessary. With this increased blood supply comes increased growth and nutrition. There is this to be said, however, in relation to this subject, etc., viz.: that the lower jaw is more likely than the upper to present family characteristics of configuration not within the range of actual deformities.

From what has been said, it is obvious that the consideration of deformities caused by arrested development must be necessarily limited to the upper jaw. These deformities merit special attention. There are two principal deformities dependent on mal-development of the superior maxilla, viz.: The V-shaped arch and saddle-shaped arch. The most common of the two forms is the V-shaped arch. The incisors protrude and are rotated in such a manner that their mesial surfaces present anteriority, forming the point of the V, the bicuspid region is contracted, and the roof of the mouth may or may not be vaulted; the cuspids are sometimes in the line of the other teeth, and sometimes entirely outside the arch; we occasionally find in these cases the lower incisors crowded, but the bicuspid and molars are nearly always in their proper places. Many theories are advanced in explanation of this deformity. Charles Tomes says that "this malformation is associated with greatly-enlarged tonsils, which necessitates breathing being carried on with the mouth open. Now, as every one can easily verify for himself, the effect of the mouth being held open is to increase the tension of the soft parts about its angles, and the result of the increased pressure is to bring about a bending inward at the corresponding point, *i. e.*, the bicuspid region; at the same time the median portion of the arch escapes the controlling pressure which would have been exercised by closed lips, and the effect of this is traceable in the excessive prominence of the median pair of incisors, and also in their oblique position, which makes them correspond with the form assumed by the inner surface of the lips when the mouth is open."

Dr. Norman W. Kingsley says:—"The pinched or V-shaped dental arch I believe to be nearly always of congenital origin—that is, an inherited tendency, favored, in all probability, by like circumstances with those which initiated it in the ancestry—while the broad or rounded form is often, if not always, due to mechanical causes."

Mr. Oakley Coles says:—"After carefully examining the works of the various writers on the subject of microcephalic idiocy, there seems sufficient evidence to justify the belief that premature ossification of the sutures is the rule in the majority of these cases, and we may, therefore, assume, if we cannot absolutely conclude, that this influence operates powerfully in the production of the dental deformity known as the lambdoid jaw or V-shaped arch."

Mr. Cartwright says:—"Want of space in the bones of the jaws may be defined

as the true cause of irregularity in the position of the teeth in the majority of instances," and then suggests that "this abnormal condition may be the result of high breeding." It will be observed that the V-shaped arch is nearly always associated with the superior maxilla and with the permanent teeth.

In the opinion of the author, the deformity above described cannot be caused by thumb-sucking. In the first place the teeth chiefly concerned in the deformity—viz. : the central and lateral incisors and the first permanent molars—are all in position, as a rule, from the sixth to the eighth year, and, when erupted, usually present a normal form and position in their alveoli; any changes from the normal, therefore, will be observed, in these cases of V-shaped deformity, to occur after their eruption. Now, the habit of thumb-sucking antedates the eruption of these teeth by a considerable time, and the child is usually broken of its habit long prior to their eruption. It is difficult, on this ground alone, to appreciate the alleged correlation of the pernicious habit of thumb-sucking with the V-shaped arch. Again, this deformity always terminates at the median line in an acute angle, while in the thumb-sucking both the temporary and permanent incisors are rounded out. Another important consideration is the fact that, if caused by thumb-sucking, the deformity would be most likely to be on one or the other side of the median line, according to the position of the force, instead of at the median line. The spaces existing between the teeth of the thumb-sucking child are never seen in the V-shaped arch.

It is noteworthy, also, that the thumb cannot well be carried into the mouth so far as would be necessary to the formation of the V-shaped arch; and even were it possible the resulting deformity would be an arc of a circle rather than an angular V. At the beginning of the V-shaped arch we find the following conditions: The first permanent molars are firmly fixed in the jaw, owing to their size and long roots, the centrals and laterals have erupted, both bicuspidis are descending into place against the firm first molars. Owing to the lack of space which obviously exists in the imperfectly-developed maxilla, with which the V-shaped arch is always associated, these teeth cause the alveolar process to be carried forward by absorption and deposition of bone. This forward movement takes place at the point of union of the inter-maxillary and upper maxillary bones.

The roots of the six anterior teeth, being conical in shape, press forward and inward in a rotary manner, the cuspids against the laterals, the laterals against the centrals, and, assisted by the pressure from the muscles of the cheeks and lips, produce an arch; which takes the V-shape.

THE SADDLE-SHAPED JAW.

Another deformity of the jaw and teeth, which is also attributed to thumb-sucking, is called the "saddle-shaped jaw." The anterior teeth are usually in a normal position. They either stand straight from the alveolar process or the cutting edges project slightly. They are seldom irregular in position, being protected from the anterior pressure of the posterior teeth by the cuspid teeth. When, as is occasionally the case, the deformity exists on the lower jaw, we find the incisors and cuspids in a straight line. This straight appearance of the anterior teeth is produced by the anterior pressure of the bicuspidis and molars against the cuspids, which are carried forward on a line with the incisors. The bicuspidis and first molars are situated considerably inside of the arch—the second and third molars taking an oblique direction laterally, with the roof of the mouth vaulted. Like the teeth of the V-shaped arch, the first molars, bicuspidis, cuspids, and sometimes the incisors, are wedged close together. This fact would suggest as a cause the want of development of the jaw.

A gentleman under my care is possessed of fine physique and well-developed frame, but has peculiarly small jaws and processes compared with the other bones of the body. The teeth of the upper jaw form almost a V-shaped arch, those of the

lower jaw the saddle-shaped arch. Like the V-shaped arch, the saddle-shaped arch does not begin to form till after the eruption of the first permanent molars. This deformity has its primary cause in the location of the crowns of the permanent teeth in a dwarfed alveolar process. Instead of the bicuspid and molars being located in the jaws in their normal positions, they stand in. This abnormal condition in the jaw may be a natural position of the follicles, or the bicuspid may be influenced by the roots of the temporary teeth and the crowns directed toward the roof of the mouth.

On the eruption of the permanent teeth, the order is changed considerably: the centrals and laterals come into position in their natural order, but instead of the bicuspid making their appearance next, the cuspid take their positions. These teeth make a fixed point of resistance in the anterior part of the mouth. The first permanent molar, which is already in position with its long and large roots, is working forward, and has also become a fixed point in the posterior part of the mouth. The space between the first molar and the cuspid is smaller than the long diameter of the crowns of the bicuspid, and both are crowded in toward the roof of the mouth. It sometimes happens that the first bicuspid erupts and secures its position before the second bicuspid makes its appearance. In this case, the crown of the first permanent molar, in working forward, comes in contact with the crown of the second bicuspid in such a manner as to form an inclined plane, and in this way the second bicuspid is carried inside the arch and is often turned in its socket, the cusps facing the anterior and posterior parts of the mouth. Nature provides support for the teeth in whatever position they may assume; the alveolar process is built up about them, giving them strength and firmness.

The extreme lateral position and undeveloped condition of the second and third molars and the alveolar process is caused by the pressure of the tongue. The arch being contracted to such an extent that the tongue, in the act of swallowing, is forced backward, consequently thickens and spreads out and produces pressure on the posterior part of the upper and lower jaw. The same condition of the teeth is also noticeable in the jaws when the arch is very shallow, and is also the result of a want of room. It is a mistaken idea that the high arch is always associated with the V-shaped, the saddle-shaped arch, or the arch of the thumb-sucker. The author has observed many such cases, and has noticed quite as many with shallow as with high arches.

IRREGULARITIES CAUSED BY THE PROLONGED RETENTION OF THE TEMPORARY TEETH.

The period of life during which the shedding of the deciduous teeth and the eruption of the permanent set occurs is a critical one in the formation and arrangement of the permanent teeth. The first small teeth are being supplanted by large ones, and at the same time the jaw is changing. The child should at this time be under the care of a dentist who has the ability to assist nature in perfecting the change. If the process be left entirely to nature, complicated deformities may arise, which, with judicious treatment, might have been prevented.

As the permanent tooth shows signs of advancing, the temporary tooth on which it impinges should be examined, and removed if loose or if its room be needed. By attention to this particular, and to the articulation as the teeth take their places, further trouble will often be avoided.

Much depends on the location of the follicle of the permanent tooth in the alveolar process in its relation to the root of the temporary tooth. The follicles are not always located directly at the apices of single roots, or between the roots of the molars, it being common to find them some distance from these points. When this is the case, the vascular papilla (which is situated directly on the crown of the advancing permanent tooth, and is the organ which nature provides for removing the roots of the temporary tooth) does not perform its function.

The permanent tooth will remain imbedded in the jaw, or will deflect to one

side, and appear either outside or inside of the arch. We sometimes find the permanent tooth forced against a single root or between the roots of a molar and the surrounding healthy tissue. Again, it is more common than otherwise to find the molars decayed and pulps exposed or dead; then the roots of the temporary teeth are never absorbed, and the permanent teeth are either retained till these teeth are removed or are erupted in an abnormal manner. It is a common occurrence to find the crowns of the permanent teeth deflected and making their appearance inside or outside the arch, owing to the long slender conical roots of the temporary incisors and the position of the dental follicle of the permanent incisors. In either case the corresponding tooth of the temporary set should be removed and the permanent tooth pressed into place with the fingers. This same condition of the incisors is liable to occur in the upper jaw, but they are less apt to appear inside of the arch than in the lower jaw. When this occurs, the temporary teeth must be removed and the permanent centrals be pushed out with the finger till they occlude outside of the lower incisors.

When they appear outside of the arch, and the temporary incisors are extracted, the pressure of the lips will usually bring them into line. The same conditions occur with the lateral incisors, and the same treatment should be adopted.

It is important to retain the temporary cuspid till the eruption of the permanent tooth. When this time has arrived, the temporary tooth should be removed to allow the advancing tooth to go into place. Should the temporary tooth remain too long, the permanent cuspid will work its way either inside or outside the arch. The retention of the temporary molars is a fruitful cause of irregularities.

Another Bridge Patent.

IT will be noticed in the list of patents, in this number of the *Dental Advertiser*, that Dr. George L. Curtis, of Syracuse, N. Y., has obtained a patent on a dental bridge.

Dr. Curtis has always been highly esteemed by his professional brethren, and we know that he has endeavored to hold his position heretofore by true professional conduct and skill. He is a fine operator, and is especially skilful in oral surgery. Just why he should, at this time of his life, patent his invention and forfeit all "claims of professional brotherhood and society obligations," and be guilty of the "vulgar offense of parading one's virtues [patents] in the public prints," is beyond a sensible man's comprehension.

Perhaps he had not heard of the ponderous denunciator of Massachusetts, and did not stand in fear of this great anti-patent ponderosity.

Perhaps he had visions of medals, monuments, gold watches, and elegantly engrossed resolutions tendered to him by an admiring and appreciative profession—many years after his death.

Perhaps he had a desire of gaining immediate wealth, and to that end would not hesitate to enslave his professional brethren by disposing of the patent to the International Tooth Crown Company.

Perhaps he had too much honor to steal a bridge patent and lie about it to the owners, and that he would invent one of his own, and thus avoid a suit for a settlement of royalty fees.

We might continue to speculate as to Dr. Curtis' intentions, but no explanation will save him from professional ostracism. He has dug his own non-professional grave, and no dental bridge will enable him to cross it safely. He is sure to tumble into the pro-patent gulf, but he will there have the genial companionship of real inventors, and escape the hooting, senseless crowd of copyists who imagine they are inventors, and who, boastingly, give absolutely nothing, "freely and without compensation," to the terribly patent-oppressed fellows.—*Dental Advertiser*.

Using Rubber Dam.

DR. B. A. R. OTTOLENGUI, NEW YORK.

PROBABLY no dentist will admit that he is not master of so simple a thing as the rubber dam; and yet how often does the dam become the master of the dentist merely because some unforeseen accident occurs in the midst of an operation. There is the tiniest tear through which mucus will ooze; the dam did not pass entirely down between the teeth, and moisture is creeping toward our work; the clamp slips; we have not allowed quite enough margin to the rubber to cover the mouth: we thought we had, but when we applied the clamp we discovered our error, and so on. Through some little oversight we have failed in that seemingly simple operation, the application of the dam. So much annoyance has occurred in this manner that, perhaps, you will pardon me if I think it important enough to tell you all the little tricks I have learnt in this connection.

For comfortable work, the rubber dam, when in position, should embrace at least four teeth; on dark days it is not amiss to take in twice as many. It should lay over the face without a wrinkle, and should not cover the nostrils; it should, however, completely cover a mustache, as the hairs often intervene between our eyes and work. To accomplish this a piece of dam of sufficient size should be stretched over the parts which it is intended to cover, so that the proper position for the holes may be ascertained, allowance being made for the stretching which will be made by the clamp. In this position the cusps of the teeth will show through the rubber, and a mark over each may be best made with an excavator, a pencil not answering as well. If, because of the loss of a tooth, a space must be spanned, the rubber should not be stretched at that point; if this is not considered it will be found that when the dam is stretched over the teeth it will not hug the necks of the teeth at this point. In fact, this rule holds for all spaces, great or small; the rubber should be wide enough. In cutting the holes use a device which makes a perfectly round hole, this being the least likely to tear. Make the holes sufficiently large; don't force a molar through a hole which would be just right for a bicuspid. Where the teeth are in close contact, soap a bit of waxed floss silk and pass it between all the teeth first; then soap the edges of the holes in the dam; in this manner there is seldom any difficulty about forcing the rubber between the teeth. Occasionally even this will not serve. Your predecessor (of course not yourself) has left a filling with ragged edges, which tear the rubber. In this case the teeth in question should be wedged with soaped wood, as will be described later. The least spreading allows the rubber to pass between, when the wedges may be removed. This is better than trying to force the dam between the teeth with silk. That method not unfrequently tears the rubber, and accounts for the mysterious oozing which occurs while the filling is in progress, and is largely responsible for the failure so often reported at the cervical border. If the dam has been properly adjusted, it can be removed in perfect condition. How often have you noticed, after removal, that in addition to the holes made by your punch there are several others, satellites, as it were, about the great orbs.

Next comes the clamp. In the first place, select the one to be used before applying the dam. Choose one which will grip the tooth tightly. Throw away all clamps which would not hurt you if put on your finger. A clamp without a spring is no better than a clock in the same condition. In applying the clamp to a molar in the upper jaw a little trick is found to be valuable. Suppose we begin by slipping the rubber over a central incisor, then over the lateral cuspid and bicuspid, and finally over the first molar. We endeavor to apply the clamp and find little room, and the patient flinches. The cause is this: The middle finger is the one we use to adjust the dam; it protrudes into the mouth, and as we work toward the molar regions we gradually fold the angle of the mouth inward, so that at last it is held back by the tip of the finger, and it is difficult to find room for the clamp. Just at this point

take the handle of a burnisher, or other instrument, and free the cheek, so that the finger passes into the mouth, the cheek slipping forward; then it will be found that, not being crowded back, its elasticity gives us room to apply the clamp without pain. This one point has been of inestimable value to me, and to my patients in saving pain.

Before passing to ligatures, there is a special case to be alluded to. Where the gum has receded and a large festooned cavity is present, the space on either side of the hole, which is to embrace the tooth which is to be filled, should be wider than ordinarily made; otherwise, when stretched so far up on the gum, there will be leaking about the edges. Ligatures should be dispensed with as much as possible. They are frequently the cause of more pain than any other part of the operation. It is rarely necessary to ligate more than two teeth, and frequently no ligature at all is needed. The trick is done by inverting the edge of the rubber so that it slips under the margin of the gum; if the root is at all conical, the elasticity will cause the rubber to crawl up and tuck itself under nicely. If a ligature must be used, a little cocaine is useful. There will come to us cases where the ligature is absolutely necessary, and where it seems almost impossible to place it so that it will not ride up around the crown rather than remain at the gum margin. Let us suppose such a case in connection with an upper lateral incisor. The cavity is in the palatal sulcus, therefore the ligature must be forced up. The trick is to tie a good knot in your silk first; placed about the tooth, this knot must come at the center on the palatal side; it makes a good point of resistance for the instrument, and is pressed up under the margin of the gum, carrying the rubber with it; the gum contracting holds it, and when tightly tied on the labial side holds securely, this is the first point I ever picked up at a clinic, and, as I have never seen it at one since, I would have lost a great deal of satisfaction which it has brought me had I been absent from that clinic.

I alluded to leaking. In a very wet mouth, after the best precautions, ligatures well placed, it will sometimes happen that moisture will creep in around the neck of the tooth. Take a piece of spunk, dip it in gum sandarach, being careful not to get an excess, and pack it in a rope around the neck of the offender. Then apply a second ligature which shall tie the spunk in place. The leak will be stopt. If an instrument has slipped and torn a small hole, it may be stopt with a bit of sponge dipt in sandarach. Where the leak is about a clamp, the clamp should be taken off carefully, a fairly large piece of spunk, treated as described, placed along the edge of the rubber, and the clamp reapplied so that it bites the middle of the spunk holding it in place. As to the slipping of a clamp, it sometimes occurs because the dam is held too tight by the rubber strap which presses around the head, or there is a strain from the dam weights.

In some cases it will be found impossible to apply the dam at all. There is a way of using the napkin which may not have occurred to all. A small mouth napkin is rolled into a narrow fold, and placed about the tooth in the shape of the letter "U," the ends forward. It is so arranged that the folds extend slightly on the sides of the tooth, where it is firmly held in place with a clamp. There is a special clamp made for this purpose by Dr. Ivory, but any clamp of suitable form will answer.—*International.*

To make our thots useful we must use them. Hide them away, and they are quite liable to become useless and forgotten. Even the best ideas we get from others soon become rusty and comparatively worthless if we do not seek to impress them on others and use them in our own lives. Therefore, let us be diligent in gathering valuable thots, skilful in planting them in the richest soil of our active lives, and careful in cultivating them, that they may bring forth fragrant flowers and matured fruit. But to make this fruit prolific, healthful and luscious for our own use, we must share it with others.

The Care of the Vulcanizer.

GEORGE B. SNOW, D.D.S., BUFFALO, N. Y.

THE occasional reports of dental vulcanizers, accompanied as they are by damage to property, and imminent risk of personal injury, makes the question of their avoidance one of considerable interest. Their entire prevention is an impossibility, so long as the management of the vulcanizer is entrusted to boys, or persons who know nothing, and care less, about the properties of steam, or the rules on the observation of which depend the safety and proper operation of the boiler committed to their charge. It is seldom, inquiry into the circumstances attending a vulcanizer explosion fails to elicit the fact that it was the consequence of gross carelessness or ignorance. The safety apparatus is often deliberately put out of order, and all the chances of an accident which may happen from a few moments' forgetfulness are taken by the operator, who probably knows about as much of the properties of steam as a Christian scientist does of human physiology.

It is proposed, in the present article, to touch on a few points of the proper care of vulcanizers, and more especially to show how and when they become unsafe by use. It seems to be the opinion of some dentists that a vulcanizer should remain good indefinitely; but often, one returned to the maker for supposed trivial repairs, is found to be in such condition that its further use would be attended with great risk.

Vulcanizers as they leave the manufacturer's hands, may be depended on as strong enough to withstand a pressure three or four times as great as that incident to the vulcanizing process. No house, having any care for its reputation, can afford to put out one unless it is of undoubted strength. They are also provided with ample safeguards, by means of which they will be relieved from over-pressure, if it should occur. But no such appliance can be made that cannot be—either ignorantly or designedly—put out of order; neither can a vulcanizer be made so strong that it will be safe under any attainable pressure. It must be carefully and intelligently managed to insure safety.

Vulcanizers are gradually weakened and eventually destroyed by corrosion and strain.

When the sides of the vulcanizer are weakened by corrosion to any great extent, the fact is easily ascertained by tapping them lightly with a small hammer. If the metal is thick and strong, it will be elastic, and the hammer will rebound from a light blow, tho, of course, copper would yield to a heavy one. When the metal is quite thin, the sensation will be as tho the blow were delivered on lead. There will be little, if any, rebound, and the metal will be driven in and dented by a very light blow.

Corrosion occurs to some extent from exposure of the vulcanizer to air and moisture. Indeed, it is by no means sure that the greater part of it does not thus take place. It is good practice to clean the vulcanizer pot, and wipe it dry before laying it away after use.

Another cause of failure in vulcanizers, one which happily occurs but seldom, is the cracking of the metal near the corner of the bottom. As the bottom is usually covered with scale, it may crack and even give way before the existence of any defect is suspected. This fact forms another argument for keeping the vulcanizer clean, as before mentioned.

When a screw fastening like that of the Whitney vulcanizer is employed, mischief is often done by the inordinate use of black-lead or soap-stone powder on the packing joint, and incidentally on the screw. The particles of which either of these powders are composed are hard enough to wear away metal if placed between two rubbing surfaces, and in consequence the screw threads of vulcanizers are sometimes so worn that they have not sufficient hold on each other to retain the cover; which, on some fine day, mounts to the ceiling, and disappears in the lath and plaster, much to the surprise and disgust of the owner.

The reason for applying soap-stone or plumbago to the surface of the packing is sometimes misunderstood. Its only office is to prevent the packing from sticking to the edge of the pot. Only a small quantity is required, and its application need be made but seldom. If it is applied liberally or often it will form a thick coating on the surface of the packing, which will be porous and cause leakage. When the coating attains any great thickness it will scale off; and the leakage, which may have been almost imperceptible before, will now be increased to such an extent as to be annoying. Possibly the dentist does not detect the cause of the trouble, and, thinking the vulcanizer "works hard," applies oil to the thread. This is burnt by the heat of vulcanizing, and the cover is virtually cemented to the pot. It is now removed with difficulty, if at all. As a rule, when the packing of a vulcanizer is in good order, and steam tight, the less done to it the better.

If the vulcanizer is too full of water, not allowing adequate room for its expansion when heated, a pressure will be developed much greater than that caused by the production of steam. The safety disk will, in this instance, be blown out, possibly at as low a temperature as 280° or 300° . Or, if the safety apparatus be put out of order, the vulcanizer pot may be bulged and stretched out of shape, or a rupture may be the result, and a so-called explosion ensue.

It must be remembered that water is inelastic, and that when it is confined, with inadequate room for its expansion, the resulting force is practically irresistible. It is easy, if the vulcanizer be wholly filled with water, to obtain a pressure of six, eight, or nine hundred pounds to the square inch, without heating the water to the boiling point. Is it any wonder they sometimes give way when carelessly used?

A safe rule is to allow one-sixth at least, better one-fourth, of the capacity of the vulcanizer for steam room. The user of a vulcanizer should never lose sight of the fact that it is a steam boiler, and is subject to deterioration by use. The rules for its management should be thoroughly read till clearly understood, and carefully observed, and after the vulcanizer has been in use for a time it should be inspected frequently, and any sign of weakness carefully noted.—*Dental Advertiser*.

Fashion in Teeth and in Form.—White and evenly placed teeth appear to us the chief ornament of the mouth; but all nations have not the same opinion. To the Siamese black teeth are the handsomest; it is their daily care to blacken them. In Macassar yellow and red teeth are esteemed above those white or black. The women of Macassar spend a part of the day in painting their alternate teeth red and yellow. Among the Jaggas the absence of the two upper incisor teeth is a condition of beauty. The woman who lacks sufficient courage to have them drawn would be despised, and would be unable to find a husband. Many women, led by coquetry or a desire to please, have four front teeth drawn instead of two, and are sure to find adorers. With the Hottentots the teeth must be saw-shaped. Among another tribe the cutting edges of the front teeth are filed flat to a uniform height. In our country a thick neck, short and buried between the shoulders, is admired; in another it is a long and slender neck that is most esteemed. In localities in the Alps an enormous goitre has its charms; a woman without this appendage could not be married. Neither is there unanimous agreement in regard to what constitutes beauty of form. The Turks and Germans require largeness in a woman; the Japanese and Chinese demand thinness. The former are fond of thick and large waists. Nor have we the right to smile at the preferences of these people, for do not we, who consider ourselves past-masters in point of good taste, at one time find beauty in a large waist, stimulated by a girdle clasped under the arms, and at another in a wasp waist, whose ridiculous length encroaches on the hips? Then, again, what shall we say of the variable camel's hump? One year it is built out large enough to contain a child or a monkey on the rump, and another year it is smashed into a pan cake. And so we might multiply the ridiculous demands of fashion.—*The British Journal of Dental Science*.

Crown and Bridge-work.

DR. W. MITCHELL, LONDON.

I DEPRECATE most earnestly the indiscriminate excision of sound teeth, and drilling for anchorages to secure supposed support for bars and footings; for in the one case very likely a perfectly sound tooth has been sacrificed, and in the other all the worst elements of a proximal cavity have been promoted, without any of the subsequent advantages of isolation, as is the case with a well-polished and self-cleansing surface of an ordinary filling. Already, in England and America, the charlatans who pose on their capacity for "crown, bar and bridge-work" are constructing animated sewers whose vitalities are being sapped by the indiscriminate insertion of these—in many cases—"fearfully and wonderfully-made appliances."

After some considerable experience in this class of operations, I have found the half cap, as still used by many, to be worse than no cap at all, affording, as it does, an exit for the cement, or other retaining mediums, and subsequently a receptacle for food and secretions that rapidly decompose, making, what would be a thing of beauty and service, a veritable gilded sepulchre.

For molars and second bicuspid the all-gold crown stands pre-eminently at the head of the list, possessing at once the greatest possible range in adaptability to variably broken-down roots, restoration of masticating surface, cleanliness, and durability. Thus, the gold-cap crown leaves little to be desired.

By utilizing the principle of the gold-cap crown—*i. e.*, a cap with a porcelain crown or facing—we have a combination that leaves little to be desired for front teeth. The Logan crown has been utilized this way, and, I believe, with very satisfactory results. I believe a solid porcelain tooth makes a much more desirable crown than the plate or flat tooth, for they can be adjusted to the cap with the minimum of heat, and are much less liable to come to grief in ordinary use than are the flat or plate teeth. About five years ago I devised a crown and attachment, using Ash's tube teeth, that admitted of a range of adaptability that has proved very satisfactory, their colors leaving little to be desired; tho having used but few, I am exceedingly well pleased with the results. Dr. Case, of Jackson, Mich., U. S., about two years ago spoke of nearly the same method as giving good results, and within the past year in England the same method has found favor.

I have found the deep collars or bands, which at first were supposed to be requisite to the success of an operation of this kind, to be quite unnecessary, a narrow one being better and much more compatible with the anatomical surroundings, and promises a greater success than experience has proved deep bands capable of; the reason for this is, there is less irritation produced while fitting them, and much less danger of the rupture of the dental ligament and the subsequent recession of the gum, causing the band to be severely in evidence, and through its exposure, combined with gingival irritation, a nidus is afforded for deleterious products that become factors in defeating the objects of the operation.

I think in some cases the band may be entirely dispensed with to advantage; where the root is an indifferent one, it may readily be restored with amalgam and mounted with a crown; this in many cases will restore to usefulness a root that may long have been out of service. I have resorted to this method with advantage, restoring quite satisfactorily an otherwise faulty articulation and obviating the necessity of a plate.

The Bonwill crown offers in many cases facilities afforded by but few others, combining appearance, range of adaptability, and comparative ease of adjustment that goes far towards making it a desirable acquisition. In connection with crown-work, the Gates-Glidden drill has proved in no small manner to be a factor in our successes. I believe in a thorough preparation of the root, and the fitting of one or more suitable pins to each case. I do not use a stereotyped pin, but frequently have to make one to suit a particular case, for by having a pin adapted to the size and

contour of a root contributes, in no small measure, to the ultimate results of an operation. While it is well to be conversant with the various kinds of crowns, I think in practice we will necessarily confine ourselves to a very few, for it is much better to become experts in a few methods than to dabble in many, as the end desired is the same in all cases, and in proportion to the complexity of the operation, in proportion is it removed from the average operator. Simplicity of process, when producing satisfactory results, will be admitted on all hands the desideratum of the active practitioner. In our public utterances we are more likely to speak of our successes than we are to descant on our failures, tho who of us have not our failures.

Fixt bridge-work has advantages over plate-work that cannot be denied, but it is a full appreciation of the requirements of the case that conduces to its success; it can be so constructed as to be as cleanly and as comfortable as the natural teeth; and if, as is often necessary, the articulation is modified to suit the individual case, a source of comfort and utility is afforded impossible by any other means.

The various means for the retention of crowns and bridge-work are commensurate with the work itself. Amalgam, gutta-percha, and cement may all be used to advantage; an ethereal solution of sulphur may also be used. I prefer for both crown and bridge-work a fine-grained, slow-setting oxyphosphate.

Never use oxychloride of zinc for setting crowns, the chemical action is so rapid and pronounced that the destruction of the adjacent soft tissues is sure to follow, accompanied with much pain.—*Internation.*

"Pyorrhea Alveolaris."

CHAS. B. ATKINSON, D.D.S., NEW YORK, N. Y.

WHAT is pyorrhea alveolaris? A disease following congestion of the myxomatous tissue of the oral cavity, affecting, with wide range of loss, the gingivae, alveoli, and teeth, from slight recession of the gums to entire solution of alveolus, and the consequent loss of teeth involved; therefore, perhaps, more properly "pyogenic gingivitis."

My experience, observation and consultation point to the following teeth in the order named as being affected with this disease:

First, lower incisors; second, upper molars and bicuspid; third, upper incisors; fourth, lower molars and bicuspid.

Cuspid resist pyorrhea alveolaris strongly, tho they alone are sometimes affected, and then to a great degree, and more often the lower cuspid than the upper.

In some instances the disease progresses slowly, and even terminates without serious loss and without treatment. In others its progress to extensive suppuration is rapid, and grave loss ensues. Usually it is a gradual, but appreciable, progress, with intermissions of retarded suppuration, but an average steady advance to eventual edentulous maxille.

The affected upper teeth are more easily controlled than the lower. Why? The immobile upper jaw furnishes a firm base to which the teeth may be confined, and what movement the teeth have is not influenced by the jaw in which they set. Further than this, the secretions of the mucus follicles and of the parotid glands all tend toward the lower jaw. Therefore, the chemical reactions are not possible on the upper jaw that are possible on the lower.

The lower teeth are set in a moving jaw and are played on constantly by the tongue, and are strained against by the lips. They float in fermenting fluid (delivered from the parotids and upper jaw), added to which are the secretions of the sublingual and submaxillary glands. The reduced quantity of both alveolus and denser bone in the inferior maxilla, and indeed its very shape, permit an elasticity of the jaw itself which goes far to defeat treatment of the lower teeth. This seems to be why a fixture is especially indicated on the lower teeth. Thus, the upper teeth may be controlled by merely medical treatment.

How do we recognize a case of pyorrhea? Perhaps the earliest condition presented to us is a tumefaction of the margin of the gum,—from pearly-red and light lilac to purplish-blue in tint,—sometimes puffing to such an extent as to be easily confounded with an alveolar abscess. The tumefied gum easily bleeds on brushing. A probe passed carefully under the gum will disclose a pocket embracing the circumference of the root, in some places nearly or quite to its apical end. Sometimes the gum will be found receded, perhaps on one side only. A variable purulent discharge may be demonstrated by pressure of the finger over the root, from its end toward the crown of the tooth. A further demonstration of the presence of pus may be secured by injection, about the necks of the teeth, of peroxide hydrogen. A general hypertrophy of the oral tissues may be noticed. Suppuration, perhaps, preceding, perhaps following, a solution of the dental ligament, which permits the pockets to be formed, and is the antecedent usually responsible for the loosening of the teeth. This loosening may, however, be present as a result of inflammation before suppuration has succeeded. The loosening may be attended with recession of the gum or not, and with or without pain.

What associated local and systemic conditions may we look for?

Locally, aside from the gingival congestions already noted, the teeth may be found elongated, the breath fetid, tartar freely present (tho many cases progress to disaster with no appreciable deposit of tartar), pus sometimes oozing from the sockets, putrid taste in the mouth, tenderness of teeth, and many times considerable irregularities, the natural result of the loosening of the teeth.

Observation may disclose such systemic conditions as stomach dyspepsia, catarrh (general or local, as nasal catarrh or other mucus surface debility), constipation, phthisis, adenoid growths, general congestion due to intemperance, kidney diseases, rheumatism, cold feet, and other extremities, indicating poor circulation and malassimilation. Dr. Rhein has truly said that incurable systemic disorders make only palliation of pyorrhea probable.

What is the most frequent systemic antecedent? Gastric dyspepsia and nasal catarrh are perhaps equally responsible above other systemic disturbances.

What operative procedures are indicated, and in what order? In answering this question it seems proper to consider a grave case as embracing, if more than, still substantially what one less afflicted would involve. Finding the teeth loose and out of place, their return to place laterally would be a natural first indication, in which normal position they should be tied with waxed sterilized silk ligatures.

It will be found perhaps wiser, all things considered, to deal with the upper jaw first; however, isolated teeth in the lower jaw, if specially affected, should be at least placed in position firmly till further attention can be given them.

The purpose of treating the upper jaw first is because of the opportunity the upper maxillary gives to secure a firm base. The initial effort is to secure firmness of the teeth in their sockets; movement must be avoided if we hope to save any of them. After the teeth are tied, such scaling as may be indicated will be the next step. The pockets should be thoroughly but carefully investigated with proper instruments, all foreign matter removed from them and from about the teeth, having recourse frequently to a $\frac{1}{500}$ or $\frac{1}{1000}$ solution of HgCl_2 in H_2O_2 . This preparation of peroxide should be used liberally, at first allowed to remain in the pockets and about the teeth for perhaps even three minutes.

The indication to suspend its use will be when the expectoration is clear or evidently free from pus. Where the teeth are elongated and resist longitudinal replacement, after they are tied in place, it may be found necessary to reduce their length to permit a proper occlusion to be secured. However, in this operation great caution should be used, as the entire contour of the face may be changed by injudicious shortening of the bite. The inflammation in the sockets inducing the elongation many times, subsides after treatment for a few days, when it will be found possible to return the tooth to normal protrusion. Teeth may, however, be restored to

their sockets nearly in their normal position by direct pressure, provided they are undertaken while loose, before regaining firmness after treatment.

The varying local medicinal treatment will be indicated by judicious observation from day to day, and is somewhat difficult to more than name in a general way. Remedies must be altered, and also alternated, as conditions present in individual cases.

For perhaps two weeks patients should be seen daily. Sometimes no application of medicaments will be indicated—perhaps a little scaling or scraping of overlooked deposit from time to time; but the continued progress of the case will be ensured by this constant attention at first.

The visits may gradually be interrupted from alternate days to twice a week, and then weekly, till in, perhaps, the third month of treatment of a grave case fortnightly visits may be proper, which interval should continue till a satisfactory cure is established.

The appearances of the abnormal conditions seem to be best indicated by color, size, and texture.

A dark blue color of swelled and soft, or spongy, gum should be lanced to relieve the venous congestion, and then injected with aromatic sulphuric acid, full official strength. Should suppuration be imminent or present, evacuation of the pus by incision, or the injection of hydrogen peroxide, is a first step, followed by a delicate application of "caustic paste" (potassa fusa $\frac{2}{3}$, acid. carbolic. cryst. $\frac{1}{3}$). A cherry-red color of slightly puffed gum calls for salicylic acid solution saturated in ninety-five per cent alcohol. A warm pink color and no increase in size indicates tannic acid, made into a thick paste with glycerin.

The mucous membrane should be carefully protected from these remedies, and they should be applied exactly and only where needed.

The constant exhibition of antiseptic and stimulant mouth-washes is a necessity, and their daily use should be insisted on.

The following washes are presented:

R Hydrarg. bichlor.....	gr. ij	
Tinct. calendulæ.....	℥ iv	
Aquæ dest.....	q s., ad.....	℥ viij. M.
Sig.—As directed.		
R Hydronaphthol.....	℥ ij	
Tinct. calendulæ.....	℥ iv	
Aquæ dest.....	q. s., ad.....	℥ viij. M.
Sig.—As directed.		
R Hydrogen perox.....	℥ iv	
Tinct. calendulæ.....	℥ ij.	M.
Sig.—As directed.		

The hydronaphthol wash is especially recommended. Many cases soon reach a stage of progress indicating simply rinsing, syringing, spraying, or gargling with the hydronaphthol wash, which will be found a good prescription for permanent use as a prophylactic. Charles Marchand's medicinal hydrogen peroxide is reliable, and harmless to normal tissue. It is specifically recommended.

What systemic remedies are indicated?

Tonics are specially indicated, alteratives sometimes. Cathartics in almost every case, especially in beginning treatment, will be found greatly advantageous.

Digestive stimulation is mostly needed, but the following seems to meet most cases. It has stood the test of time, and has been one of the means that has brought success with every case remaining under control.

R Cinchonidinæ sulph.....	℥ ss
Acid. sulph. arom.....	℥ ij
Alcohol, 95 per cent.....	℥ i j
Glycerin, C. P.....	℥ ij
Aquæ dest.....	q. s., ad.....
Sig.—One teaspoonful <i>ter die</i> , as directed.	

If the patient complains of variable pain in the back, general weariness, chiefly located at or near the loins, the following will be found beneficial :

R Potass. iodid.....	℥ ss
Aquæ dest.....	℥ vj.
Sig.—One teaspoonful <i>ter die</i> , as directed.	

Alternate these prescriptions for two weeks ; then, unless indications point to the contrary, leave off the iodide, replacing it with the cinchonidine. Keep the two prescriptions in use till a satisfactory cure is obtained. Many cases will not need the alternative (iodide), but it will be found all cases are benefited by the cinchonidine.

What mechanical means are indicated ?

After the tying of the teeth in place, it may be found difficult to restrain them from elongation. This may be secured by striking copper caps made continuous and embracing all of the affected teeth, extending from the occluding surface of the crowns well up on their lingual or buccal surface, as the case may be, but the fixture should be in one piece, extending from firm tooth to firm tooth ; sometimes more than one may be found approvable.

These copper retaining-caps should be bound to the teeth with copper wires, each separate loose tooth fastened firmly in proper position to the cap fixture, and the extremities of the fixture firmly tied to sound supports. Where the whole arch is affected, as many times occur, and all of the teeth are loose, a continuous rim, embracing all of the teeth, will be found to give quite adequate firmness. To this all of the teeth should be bound, each separately, so as to insure its being retained in its own place in the fixture, and that it shall not be crowded out by untoward circumstances.

The capping of the occluding surface must, of course, be judiciously done. Improper interference with the bite would aggravate the condition, but judgment is necessary to undertake such a case of surgery, and should be employed throughout its treatment. These copper plates may be left on with great advantage for a year or more, tho they are noted here more especially as a temporary fixture, to be left on for, say, three months at the outside. They are objectionable only for their unpleasant taste, which may be greatly alleviated by a solution of bicarbonate of soda, one dram to four ounces of water, used as a mouth-wash. We have experience of a case in my father's practice involving an entire denture of thirty-two teeth, where, above and below, continuous rims of copper struck to fit, of varying breadths of about one-fourth inch and one-sixty-fourth of an inch thick, were left on for one year and three months, during which the teeth became attached firmly without any other treatment, tho the case had been under treatment but a short time before placing the steadying fixtures. Also, during this interval, the patient became a mother, and this without any serious aggravation of the disease, and probably would have remained out of sight indefinitely had not two of the wire ligatures broken away from one side of the upper fixture, allowing it to drop down. This plate was retained by six ligatures—one on each second molar, one on each first bicuspid, and one on each central incisor. The discomfort of the plate brought about her return. The lower teeth were found to be in such good condition—firm in their sockets, hypertrophy subdued, no pus present, sensitiveness gone, occlusion not ideally, but practically, correct—that the copper plate was removed from this jaw and left off. The upper left first molar was still weak, slightly suppurating. The teeth were cleansed and the fixture drawn back to place without being separated from the other teeth and wired anew, and the molar put under treatment. There were no cavities found on any of the teeth, notwithstanding this long presence of the plate in the mouth. It seems to indicate that the copper has a direct antiseptic action, as well as germicidal, and, perhaps, stimulant.

To return to a general consideration of the mechanical means within our reach. These would embrace bars built into the teeth (as advocated by Dr. M. L. Rhein), cap and other specially indicated struck retaining fixtures, which, if intended to be

permanent, should perhaps be made of platina, platina and iridium, or gold, and should be cemented in place. Struck cap fixtures are advocated as best meeting the needs of these cases. A not usual mechanical retaining device, which could be associated with a regular retaining fixture or not, as the case indicates, would be pockets constructed for the reception of reproduced gum-tissue. These could include a sponge-graft where the loss of tissue is extensive. They should be made with removable windows, so that frequent examination of progress may be made.

What surgical means are indicated?

Distinctively surgical procedure means the employment of three efforts: 1, free lancing to relieve the venous congestion generally attending pyorrhea; 2, the removal of carious or necrosed bone, alveolus, root, or maxilla, one or all (this last, it is hardly necessary to say, should be by burring with the engine); 3, an aspect of surgical treatment that would require reproduction. For this, sponge furnishes a means of restoration entirely feasible when properly controlled, and efficient if intelligently managed.—*Cosmos*.

For Rheumatism and Sprains.

DR. T. B. WELCH:—Yours of the 15th inst. received. With your request I cheerfully comply.

Ointment for inflammatory rheumatism and sprains:

R. Lard.....eight ounces.
Spirits of turpentine.....two ounces.
Sulphuric acid.....one ounce.

Mix as follows:

Lard and turpentine must be first mixt together, when the sulphuric acid is added, always in an open vessel, as the chemical action of the ingredients, in uniting, is violent and produces considerable heat. After once cooling, it can be bottled for use.

By rubbing the parts freely and applying light flannel cloths, saturated with the ointment, to the parts, you will find inflammatory rheumatism speedily relieved, and a sprained ankle, or other joint, cured almost as by magic.

The story of how it came into my possession is as interesting as it is romantic. While a lone traveler in the West, in 1850, a boyish impulse induced me to relieve the necessities of an old gentleman who had lost his pocket-book, leaving him at Cairo, Ill., with a wife and a very interesting little girl of twelve years, utterly destitute of funds. His home was in the State of Michigan. When he ascertained the amount of interest I had manifested in his condition, he wrote off this prescription and requested me to take especial care of it. And, with tears in his eyes, he said:

"You may never be a doctor, but you have it in your power to relieve much suffering. And, from the manner in which you have treated me and mine, I could not leave it in better hands. I paid fifty dollars for it, and have received my money back many times over."

I carefully folded it and laid it aside. On my return to Virginia, in talking with my old grandfather, who was too old and fleshy to practice, but still took a lively interest in everything connected with medicine, I was reminded of this prescription, and spoke of it in a casual way. He at once became much interested, and I had to hunt it up. I found it, and, without having ever opened it, handed it to him. He opened it, and, with an exclamation that astonished me, exclaimed, looking intently at the signature:

"Oxphy P. Watkins! My old playmate! I have not heard of him for thirty years."

It is needless to say with what zest he had me prepare it. Scores of relatives and friends in Virginia to-day can testify to its virtue.

JOS. DINWIDDIE.

Fayetteville, Tenn., August 18, 1890.

Fixt Bridge-work May be Kept Clean.

MALCOLM W. SPARROW, L.D.S., TORONTO, CANADA.

DR. WELCH—DEAR SIR :—Since reading in the August number of your valuable journal Dr. Edmund's article on Removable Crown and Bridge-work, and the discussion which followed, I am moved to make a few observations in support of the argument that a fixt bridge may be kept clean. I may say right here, however, that with any kind of work for the mouth cleanliness depends greatly on the patient. If our patient has never learnt the use of a tooth-brush, we cannot expect anything else than a dirty mouth, even with a fine set of natural teeth. But if we have one whose habits are cleanly, there is no reason why we cannot have a piece of bridge-work as clean as the natural teeth. I have had objections to fixt bridges, because of the possibility of uncleanness, but of late I am decidedly of the opinion that bridges can be made almost self-cleansing.

Of course, we must construct our bridge so that it can be cleaned, and we must impress it on the mind of our patient how necessary it is to clean it daily. This would not require any more attention than do the natural teeth. A young man came into the office with the central and one lateral missing. They had been knocked out by a blow from a Lacrosse stick. The left central crown had been broken off so as to leave a root splintered below the gum margin, while the other central and the adjacent lateral, roots and all, were gone. The young man was a cornet player in one of our leading bands, and as the loss of his teeth prevented him playing altogether, it became necessary to improvise something which might serve as a substitute for the lost teeth. When we come to consider that in playing a cornet a great deal of pressure is brought to bear on the anterior teeth, the case seemed almost hopeless. However, we attempted it, adopting the Richmond method. The central root was capt by extending the band on the chipt side of root well up under the gum. The other abutment was made by placing a band of pure gold about the cuspid. The backs of the teeth, after soldering, were beveled toward the cervical edge, so they barely touched the gums, and yet appeared very natural. The cap was carefully made, so that leakage was impossible. The band was burnished to the cuspid, and was nearly out of sight. The patient was cautioned about keeping it clean. Nearly four years have passed since then, during which time I have seen the patient often, and have reason to believe the case is a success. He has played the cornet every day since the operation. The bridge is as firm as when first put in. It gives him not the slightest trouble, *and it is perfectly clean*, not even a bad odor is noticeable. He says by taking a sup of water after each meal and rinsing it through the bridge, he has had no trouble to keep it clean. I constructed a bridge of ten teeth on the same principle for a fashionable lady of this city, with the same result. I made this case so that by rinsing the mouth with water after each meal all particles of food could be easily removed. Of course, the tooth-brush is necessary, at least once a day; but it is necessary quite as often with the natural teeth. I have put in several other cases, and where the patients have followed my instructions about cleanliness the result has always been satisfactory. I do not approve of any portion of these fixt bridges resting on the gums, as food will certainly squeeze in and collect. Neither do I approve of making attachments to natural crowns by means of cavities and fillings, as the attachment is sure to work loose. When I have to use a crown for attachment, I grind it down and make a cap for it, then solder to the cap. I use the gutta-percha filling material for setting all crowns and caps, as it is non-irritant, and easy to remove in case of accident; besides it does not dissolve like the zinc materials.

I have never made a case of removable bridge-work; but it seems to me, while it has many advantages, it would work loose, and with some patients could not be used. But I quite agree with Dr. Traux, who thinks "we should learn to discriminate between the movable and immovable, and to use the right one in the right

place, making our work an individual operation in each case, which will insure higher results and the greatest good to patients." I also believe that we should not condemn the immovable bridge for being uncleanly. If the bands are made tight-fitting and proper cleansing spaces are left, there is no reason why it cannot be kept clean. Recently I was shown a piece of work in the mouth of a practitioner of this city. It was a molar, two bicuspid, and a cuspid, supported on the cuspid root and the second molar by means of Richmond caps. It had been in the mouth over two years. There was plenty of cleansing space, as the molar and bicuspid were nearly a thirty-second of an inch from the gums. It was perfectly clean. By rinsing water thro it after eating and a daily use of the tooth-brush the food had been kept out. The gentleman was perfectly satisfied with it, and when I expressed my doubts about bridge-work being cleanly, he exclaimed, "That's all bosh! You can have it as clean as you want it."

Marshall's Matrices.

THE ideal matrix must be so flexible that while the cervical border is thoroughly closed, leaving a filling almost finished at that point, there must be a perfect freedom in contouring in any direction desired, especially with gold. It must be one that will enable the operator to insert amalgam or alloy fillings, in such a way, as to eliminate entirely from the operation the danger of disturbing them, in the process of removing the artificial wall. Such a matrix will be a great advantage. It should be so flexible that the cervical and other borders of cavities may be made secure against the possibility of the filling material being pressed out and forming overlapping edges. This is especially desirable at the cervical border, where it is most difficult to be certain of a perfect finish. It should be so constructed that very little anchorage will be necessary at the cervical, lingual and buccal portions, making the principal anchorage at or near the grinding surface, and enabling the operator to shorten the work by one-half, with almost no waste of material, and doing his malleting principally against the artificial wall.

Because such a matrix has not been placed in the hands of the profession, many of its most prominent members have been inclined to look on all devices for this purpose as a "snare and a trap," and have preferred to discard them entirely, realizing they can be more certain of results without them.

The band matrices all require two spaces for the operator to use them, and cannot be made to conform to the contour at the cervical margin. It is impossible with their use to restore the exact contour, and if amalgam or alloy be used, they cannot be removed without disturbing the filling, unless the space next to the filling is large or vacant, and even then much care must be observed.

The loop matrices have faults equally objectionable unless they are used entirely for cavities where there are wide or vacant spaces. What I have said of the band and loop matrices is true of all matrices that have thus far been placed on the market, and tho they are objectionable in many respects, those who have persevered in their use have found them of great advantage, doing better work with than without them.

There is a necessity in this direction, and as its latest offspring a matrix has been invented and placed on the market that does away with all of these objections. It is easily applied. It requires no more space than is absolutely necessary to prepare and polish the edges of the cavity, and requires only one space. At one application four cavities may be securely closed; but as two cavities are nearly always found in one space, this matrix, necessarily closes both, making one as secure as the other; and, however much force may be used in condensing, the matrix remains secure. As it is applied with the rubber dam clamp forceps, the convenience of applying it between the posterior teeth is as great as between the bicuspid; and when in position it is not in the way of the operator, as the parts above the teeth may be turned backward or forward. To recapitulate, this matrix has these advantages:

- 1st. It is very simple and is easily applied.
- 2d. It requires no more space than is made by the thinnest separating file or saw, which will give only enough room in which to use thin sand-paper and emery disks for finishing.
- 3d. It is easily removed without the slightest danger of disturbing an amalgam or alloy filling.
- 4th. The metal used for forming the walls is so cheap that one dollar will purchase enough to furnish any dentist a life-time if he is ever so busy in its use.
- 5th. It can be used wherever the use of a matrix is indicated.
- 6th. It secures the cervical margin so thoroughly that no doubt need be felt by the operator, as to the finishing of the work at that point where most fillings have failed as a necessary result of improper or no finish.
- 7th. It may be tightened or loosened, if necessary, during the operation.
- 8th. It is so substantial and durable that one instrument ought to serve a dentist of large practice through many years without injury.

[We have seen these matrices, and observed how they work. It seems to us they could hardly be improved. They are very easily applied, always out of the way, and yet always just in the way to prevent a slip or a mistake in the formation of the filling.—ED. ITEMS]

Vulcanizing a Finished Palatal Surface.

DR. M. D. L. DODSON, TITUSVILLE, FLA.

EDITOR ITEMS:—In compliance with your request to transmit for readers of the *ITEMS OF INTEREST* my method of making vulcanic plates, by which the palatal surface is finished in the vulcanizer, with the rugs to give a natural feel to the tongue, and to assist in enunciation.

If the work is done properly, the lingual surface will have a good finish, the plates will be stronger for uniformity in thinness, and in wearing will afford more comfort.

This improvement will be appreciated greatly by public speakers, as a plate finished as commonly done rather retards the free movements of the tongue.

Required, to begin with, tough, bas-plate wax, and No. 60 tin foil. Use the wax for setting up the teeth, and for trial in the mouth, having worked it neatly on the model, keeping hands and everything scrupulously clean. Build on with the melted wax, the rugal, as the plaster model indicates. Invest in lower half of flask as usual. When plaster sets, take a half sheet of the heavy tin foil and burnish down carefully over the surface of base-plate wax, using, at first, the smooth, rounded end of a scraper handle, or something similar, about half an inch in diameter, followed by a plate-burnisher. Keep out over-laps and wrinkles as much as possible. Burnish nicely and allow the tin to lap just over the grinding surfaces of the teeth to hold in the plaster, when fully invested. Work in the tin between the crowns and in all depressions in the grinding surfaces of the teeth. Trim neatly all around and turn up a flange behind the plate. Now, invest in the upper half of flask as usual. Before parting the flask, warm slightly; and burnish nice entire surface of the tin before packing.

Of course, the wax plate must be trimmed and finished before final investment, precisely as it is wanted when inserted in the mouth. The rim above the teeth is to be finished in the usual way after vulcanizing, but nothing will be required to be done to the lingual surface except to remove asperities and trim closely around the teeth. The lingual surface of the plate is thus finished in the vulcanizer, and will have a polished surface much more agreeable to the wearer than one made in the usual way, while the work of scraping and polishing is avoided, and three-fourths of the labor of finishing is saved to the workman. The work is artistic in appearance, and so much more satisfactory to the wearer, that no one will afterward consent to wear a plate finished in the usual, clumsy way.

The Pulp Canals.

DR. T. L. JAMES, FAIRFIELD, IOWA.

AS a rule the pulp canals are indicated by the external appearance of the teeth. We find this quite so in the upper incisors and cuspids; these canals are very much alike as regards form, except in the apices toward the crowns, where those of the cuspids differ materially from the incisors. The canals in the incisors at this point being wedge-shaped—much flattened labio-lingually and deep through the mesio-distal diameter, while the canals in the cuspids are small, both through their mesio-distal and labio-lingual diameters; the centrals and laterals are more flattened at the median than at the distal aspect. These canals in the centrals and laterals enlarge labio-lingually from the extreme points in the crowns to the neck neatly and gradually, while in the cuspids the enlarging is from both directions, they may then be compared to elongated tubes from a point below this.

In the lower centrals the order is reversed as regards size, and a material change from the upper in form, and having compressed canals mesio-distally, so much so that it is often impossible to introduce the minutest pulp instrument through their centers. The bicuspid have somewhat more complicated conditions. These have marked grooves on both the mesial and distal faces. The variety of the forms as found in the second superiors causes it often difficult of treatment. Often in the cervical portion the canals of these teeth are no more than transverse fissures, with small openings at either extremity labio-lingually. We often find bifurcated canals, sometimes separating the entire length from the bulbous portion, and, again, in other cases, they are united near the apical foramen. We will take a few points in the canals of the molars, comparing and contrasting the uppers with the lowers. We find in the enlarged portion a marked contrast in form. In the uppers the greatest contrast between those and the lowers is found through and near the greatest diameter of the pulp canal. The greatest diameter in the uppers is labio-lingually, while in the lower molars it is greatest mesio-distally, or antero-posteriorly. There is greater angularity, or at any rate the angles are more numerous in the canal of the uppers than in that of the lowers. In the uppers we usually find two or more rather acute angles in the circumference of this locality, while in the lower we seldom see more than one, that being beneath the antero-buccal cusp, the posterior portion being rounded or quite oval. These conditions are nearly unchanged in the second and third molars, except that the chambers are of greater length as compared with their breadth, the third being more so in this respect than the second, both in the upper and lower. On taking a view from a part near where the bifurcation occurs, we see no indications of their terminating at any common opening, either toward the enlargement or in the other direction.

The description of the upper second bicuspid, from the bulbous portion to the apex of the canal at the root, may serve as to the conditions found in the anterior buccal root in the upper teeth, and the mesial root in the *lower* molars, both as regards variety and in forms generally.

We have recently found in the examination of lower molars, especially in the first, a number of specimens in which there were two separate and distinct foramina in the anterior root, and they are frequently found where separate canals exist in the same roots, leaving the root through one common aperture.—*Dental Review*.

The Post-Graduate Course at the Chicago College of Dental Surgery, during the month of June was attended by forty-five practitioners from all parts of the United States and Canada. It proved to be successful, as was demonstrated at the banquet given at the Leland Hotel on June 26. Short speeches were made by nearly all those in attendance, and the general expression of those in attendance seemed to indicate that much good had been done, and those who attended the course had gained something, and that their patients will get the benefit of the time and money spent by these progressive dentists.—*Dental Review*.

Some Notes on the Manipulation of Gutta-Percha.

DR. L. ASHLEY FAUGHT, PHILADELPHIA.

THE claims made twenty-five years ago for gutta-percha as a temporary stopping for teeth, have been so completely fulfilled, that to-day it is considered by some a permanent filling. Many are the patients who can testify to the comfort they have enjoyed because of its non-irritating and non-conducting qualities; and teeth without number have been preserved with it, which could not have been saved by a material more difficult to manipulate, or more soluble to the fluids of the mouth.

Gutta-percha filling materials now in use vary in hardness, and, consequently, in the heat necessary to make them plastic for manipulation. The process by which they are prepared for use requires a dental heater on which they, and the instruments used in the insertion of the filling, are raised to the proper temperature. In their use, therefore, two difficulties are encountered, viz.: the possible overheating, and consequent injury of the material, and the cooling of the instruments and portions of the material in their transit from the heater to the mouth.

A good and durable gutta-percha filling requires that each portion shall be in proper plasticity when placed in position, and that dryness be maintained during its introduction.

Experimentation to overcome these difficulties, and to secure these necessary conditions, has developed and placed before the profession my improved dental heater. By it, we, in a manner, arrive at the introduction of gutta-percha by the aid of electricity, and somewhat in the same way as a perfect gold filling is made. Pellet by pellet is introduced, properly annealed, and made, by true coherence, a part of one solid mass. The point of the instrument is kept at the temperature required by the material used, through heat developed by means of a resistant material introduced at the base of the point in the circuit of a current of electricity. The filling material is cut into pieces of the size and shape most appropriate to the cavity to be filled, and laid on a glass slab just as we place gold pellets on our kid-lined tray. The pieces are then picked up by placing the warmed point of the instrument against them, receive the necessary heat for plasticity as they are carried to the mouth, and worked into position by a properly heated point which does not cool while in use. The merits of such an instrument are many, and only need to be indicated to be appreciated. It insures against overheating the material, guarantees a proper plasticity at all points in the work, and saves much valuable time now lost in re-heating cooled instruments.

Electro-Deposit Dental Plates.

AS there have been many inquiries concerning the electro-deposit dental plates, we give the process of making them; of course, an accurate model of the mouth is necessary. This is suspended in solutions, and, by the electric current, the metals in the solutions are deposited on the cast. The result, therefore, must be a perfect fit of the model. If the cast is a faithful model of the mouth no anxiety need be entertained, as the plate will be reproduced with the accuracy of a photograph.

The process of depositing these plates has been very greatly improved. As Dr. L. P. Haskill, of Chicago, says, "they are tough and strong, and can be soldered with 18 or 20k gold solder, and that this plate should take the place of rubber."

The plate is prepared all ready for the dentist to put the teeth on, by rubber or celluloid attachment.

There is no question that metal plates are greatly superior to rubber. For metals are conductors of heat and cold; they are thinner, and the sense of taste is better, and the "sore mouth" incident to rubber plates disappears.

We believe the deposit plate an excellent thing, and hope the profession will give it a trial.

Vexacious State Laws.

SOME dental laws remind me forcibly of a bit of experience I once had in the State of North Carolina. Just after the close of the war I spent much of my time, and about all the cash I had, trying to prepare myself for the medical profession. After an experience of about twenty years' active practice in another locality, I located in the old North State, took out city license, and registered my diploma in the clerk's office in accordance with the law, tacked up my old weather-beaten sign that I had been using for several years past, and, thinking that I had everything about ready for business, sailed in, and soon had about all the practice I could well attend to—in fact, almost too much to suit two other doctors who were in the same business—when all at once news came that I was violating the laws of the State, that I was subject to fine and imprisonment. Of course, this naturally surprised me, and I inquired in what respect could I be held as a violator of the State laws, as I had endeavored in every way to comply with all the requirements, that I had always been a law-abiding citizen. I was then told that it was a violation of the law to endeavor to practice medicine or surgery without first presenting myself before the State Medical Board, and subjecting myself to an examination and paying ten dollars for a State license, notwithstanding that my memory still retained a vivid recollection of having passed, about twenty years ago, a rigid examination before a medical college faculty, and how proud I felt on receiving my diploma. Yet all this is to be ignored by the State Board. Well, I started on a still hunt for the Mayor's office. Finding him in, I told him what I had done, and stated to him what I had just heard about a State law, and, if such was true, I was ready to go before the Board if he would have the kindness to inform me when and where this Board would meet. He told me that the State Board met only once a year, in the month of May, but he did not know *where*. It then being ten months before the next meeting, and as I was not disposed to sit down with folded arms to await the meeting of that important and august body, I concluded to pull up stakes and take myself away to the State of Georgia.

A. J. HAILE, M.D.

Savannah, Ga.

EDITOR ITEMS:—"It is strange how ignorant we mortals are of beings below us," is well said in an article in the April ITEMS, and well-proven in an answer to the same in the June number. Article one makes the assertion that all ruminants are without upper front teeth, while article two contradicts, with the statement that "some ruminants do have upper teeth, because the rabbit, who is a ruminant, has upper incisors." As well class the gigantic behemoth of Biblical fame among the humming-birds, as this little innocent rodent among the ruminants. There may be some similiarity in the constant snuffing of the rabbits' nostrils and the motion produced in their chewing with that of chewing of the cow's cud, but here the relationship ends.

However, the statement that some ruminants do have upper front teeth is a true one. In most families of the ruminantia the upper incisors and canines are wanting, and are replaced by a callous pad, against which the lower incisors strike. Hence, the upward motion of the head as the animal tears off its food, the tongue assisting materially in this process.

In the camelidæ, which family comprises the camels and South American llamas, we find in the upper jaw two conical and laterally compressed incisors, which resemble in form the canine teeth, of which there are two in the upper maxilla, in addition to twelve molars. In the lower jaw there are six incisors, two canines, and ten molars. In the cervidæ, or deer family, superior canines are found in a number of species. The male muntjac, of Java, is furnished with long canines in the upper jaw, and in the musk deer, of Central Asia, canines are found in the upper jaws of both sexes.

H. R. PASEDACH.

Tipton, Iowa.

Local Anesthetics.

IT looks presumptuous for a man to set up two years' experience against the experience of our old dentists. I have about two years' experience in using local anesthetics for all ages of people. I have procured anesthesia in this way. I noticed in a dental journal a recipe consisting of antipyrine and cocaine. I had used four per cent cocaine a few times, got afraid of it, and quit it; used it on cotton close to the gum. I continued to use four per cent of cocaine and four per cent of antipyrine, and try it as an anesthetic, and used two or three drops hypodermically. I found I produced complete anesthesia and extracted teeth without pain. If it were necessary, I could give the certificates of more than one hundred of as good people as there are in Maury county, that I have extracted their teeth and never gave them pain, and I have never had bad results from it, tho, in one or two instances, I have had my patient come back the next day, perhaps, and complain that their jaw ached, not like toothache, but like jaw ache.—*Dr. Grant.*

I want to state that cocaine is one of the finest local anesthetics I have ever used, and I have had some of the best results I ever imagined. And I have had some of the worse feelings any human being ever felt; have felt there were spots on me as big as a picture frame. I met a wagoner and I told him I could extract teeth without pain. I applied five drops of cocaine hypodermically, and extracted the tooth painlessly; I thot it one of the finest operations I ever performed. I went to town and a young physician came to me to have a tooth extracted. I applied about eight drops of the four per cent solution, and I reached for the lance. I always use a lance to cut around a tooth, and the man had slipt down on the chair; I reached for the patient and a basin of water, with one hand holding him and with the other reaching for the water. That man was dead, very dead, one of the deadest men I ever saw from cocaine. I studied two or three minutes before I called any one; I laid the man on the floor, got my cocaine, and stuck it in my pocket, and put another vial down in the place, then there was so much racket that his wife heard it, and she ran in, and said, "My God! My husband is dead!" I walked about and slapt him in the face; I pinched him and did everything I could think of, and, after awhile, I threw him on the floor and the man came too; this relief was from nothing that I did. That is one of the happy results I had. I am a friend to cocaine, because it don't kill; I don't believe it will kill, when applied properly. I applied that properly. If I had given one more drop the man would have been dead.

I have used it with success. A girl of thirteen came to me suffering from the loss of two lower laterals; necrosis had set up, and it was so offensive I could scarcely stay in the room. I looked down in the gum and could see the dead bone perfectly black. I saturated two pieces of cotton with cocaine, and laid on the outside gum, and, after a minute, this benumbed the gum, and I took the lance and split it and laid it right open; then I put a borer on the engine and bored all that out; treated the case about two months. In about a month a new bone had formed; the prettiest white pearly bone I ever saw.—*Dr. McAnnally, in Dental Headlight.*

Preparing Root Canals.—I enlarge the canals, without any exception, where I can. You cannot always tell the exact length of the root, so as to be able to open it up to the apical foramen. I open them up that I may better know what I am doing, and to remove a portion of the dentine. The tubuli of the teeth are filled with semi-fluid material, which, if permitted to remain, will certainly take on putrefaction under ordinary circumstances. If you have any doubt about it, cut into a crown of a tooth of a young person, that has only recently lost its vitality, and carry a portion of the dentine to your nose, and you will find what I say is true; putrefactive decomposition has been going on. I want to remove a portion of that affected dentine, and hence I enlarge the canals where I can. When I cannot do that, I cleanse them as well as I can by the ordinary methods.—*Dr. W. H. Morgan.*

A Bogus University—The Sale of American Diplomas.

A MOST astounding account of the systematic way in which the business of selling the degree of M. D. has been conducted in some parts of America was recently published by the *Boston Sunday Herald*. According to the report before us, there are five of these "bogus diploma mills" in the United States (one each in New Jersey, New York, Ohio, Vermont, and New Hampshire), and one in Canada, at Montreal. The investigations of our contemporaries were specially directed to the proceedings of an institution calling itself by a high-sounding title—"Universitas Trinitas, Collegium Medicinæ et Chirurgiæ, Reipublicæ Vermontis." Its Dean lately forwarded to Mr. A. H. G. Hardwicke, described as a well-known hardware dealer of Buffalo, a beautiful Latin diploma, which declared that the faculty admitted him to the rank of doctor of medicine, with "all rights, freedoms and honors belonging to that station." Now, it does not appear that Mr. Alan H. G. Hardwicke had proved anything of the kind, nor that the "examining instructors" had had, or, indeed, seriously sought, any opportunity of ascertaining that he was "well grounded in medicine and surgery." In fact, Mr. Hardwicke knew nothing of medicine or surgery, being, as has been already said, a successful and respected dealer in hardware. For the purpose of investigating and, if possible, exposing the whole system, he applied to the person calling himself Dr. H. F. Bradbury, Dean of the Trinity University.

At first some small pretense was made of requiring some sort of examination. This is what "the Dean" says in his first letter: "We can get you a much better article than the *Bellevue*. We can get you an article from a college in Ohio for one hundred and fifty dollars, dated 1880, or one from a university in one of the New England States for sixty dollars. This latter will be dated the coming May. Your brother has ordered one of the latter. I enclose circular. All business must be done with me, not sent to the university. I should like very much to see you. Wish you could come this way, and when here get your article. You should send thesis, and also pass some kind of examination, so you can swear in court of law it was granted after due examination. Send money by express." This was on the 13th of April, 1889. By the 22d of April the Dean will be more easily satisfied as to his correspondent being able to show that he is well grounded in medicine and surgery. "If you write a good thesis," he tells him, "we will pass you on the examination." The *Herald* having made inquiries on the spot, it was finally determined that Mr. Hardwicke should attempt to obtain one of the diplomas. No great difficulty was encountered, and, after a little fencing, the Dean consented, on the 18th of August, "To send the goods c. o. d. This," he adds, "is something I never did, and it is not customary in this business. However, if you give me your word as a gentleman that you will take the article from the expressman just as soon as it gets to Buffalo, without any delay or exposure, I will send it." Accordingly, the following letter was, on the 27th of August, 1889, addressed to "Dear Mr. Hardwicke," whom the writer, so far as appears, had never seen, "We have shipped to you this A. M. goods, c. o. d. sixty dollars, per agreement. We sent by the name of E. L. Needham, as we did not wish to put our name on the express. Please take it as soon as arrived. Yours faithfully, Dr. Bradbury." In it the recipient, "a well-known dealer in hardware," be it remembered, found his learning set forth in most official Latin: "Quoniam inter omnia Academica Corpora, secundum leges instituta [sic] mos antiquus et honestus factus est, magno honore donare, eos qui studium fideliter dederint Literis et Scientiæ et Artibus Utilibus, atque se interdum integritate portaverint, Igitur quum Alan H. G. Hardwicke" [hardware merchant, to wit!] "Nobis se Arti Medicinæ per tempus usitatum et secundum leges operam dedisse demonstrat" [sic], and so on.

Secundum leges, there is the rub. The articles of incorporation had been duly 'recorded March 25th, A. D. 1889, at 8 o'clock, A. M. by E. A. Booth, town clerk." So that it would seem that this university, founded, according to the modest claims of its parents, "for the purpose of education and charitable purposes," but confining

its operations mainly, if report be true, to selling diplomas *doctoris medicinæ* to hardware dealers and others, is not an illegal body ; neither is it, if the report in the *Herald* states the case correctly, the only institution of the kind in Vermont.—*British Medical Journal*.

The Influence of the College.

FOLLOWING closely the increasing recognition in this country of the necessity that a reasonable degree of mental education shall be general, is a growing demand for the elevation of the standard of special education—a demand which has resulted in the announcement that at the end of the present collegiate year a three years' course will be required as a preliminary to dental graduation. There is thus good reason to believe that there will be a marked advance in the direction of a broader education. The benefit of this extension of the curriculum will not be limited to those directly interested as students in the change ; in some degree it will be felt by all who are engaged in the practice of dentistry. The influence of a college in successful operation is not confined to its matriculates, but has an important bearing on the entire profession, as well as on the general public. Its energies are felt in sister institutions, and form, to a considerable extent, the estimate in which that profession is held by the community at large.

Another, and a notable result, will follow. Improved graduates will make not only improved practitioners, but improved instructors and improved authors. It is not, therefore, a mere increase in the number of more liberally educated dentists which is to be the outcome of the change noted, but an elevation of the general tone of the profession, and a consequent and deserved advance in the estimation of the community.

The duty of every college in the association is plain ; the spirit, as well as the letter, of the compact should be rigidly adhered to. More and more each year the professional estimate of educational institutions is based not on the number of graduates, but on the qualifications of those who bear their diploma, and the law of evolution—the survival of the fittest—will assert its supremacy. The profession have it largely in their own hands to determine the character and competency of the future practitioners of dentistry.—*Cosmos*.

How Doctors Advertise.

OUR eclectic, homeopathic and allopathic friends are terribly opposed to what they call an *advertising doctor*.

Webster, in his dictionary, tell us that to advertise is to make known your business, and we do not see how any physician can let the people know that he is a doctor unless he advertises in some way. Some do it by putting a sign on their office, and giving out cards, and in this small way let a few people know they are doctors. Others engage in more extensive advertising, by getting up a free dispensary for the cure of all or some special disease, and in this way seek notoriety by indirectly advertising themselves. Others organize hospitals, get up an influential board of managers, and in this way parade themselves and their practice before the public. Others organize medical colleges, and advertise an army of adjuncts and specialists. In this way they obtain free advertisement.

Others publish medical journals, the principal portion of which is devoted to advertisement, and in this way gain notoriety. Others organize city, county and State medical societies, to parade their views before the public, and thus advertise their business.

Others organize medical boards for examining other doctors, thus bringing themselves into notoriety and advertising their business. Others get up banquets at their own expense, and thus gain free advertising through the secular press.

Others perform necessary or unnecessary surgical operations, and by slipping a

"V" into the hands of the reporter, advertise their business in a very extensive and cheap way.

Others join some popular club, church or society to advertise their business. Some will attend a popular church, and be called out during the services, so that the congregation note the fact and advertise his business.

Others will hire servants to rob their houses, that the reporters may advertise their business.

Others will purchase a fine livery and turnout, and by means of a gorgeous display advertise their business.

Others will write some buncombe essay for a medical journal, and obtain ten or fifteen thousand extra copies to advertise their business.

Others get up some compound, and get all the members of the medical colleges and prominent physicians to indorse it, and thus advertise their business.

While others come out with a straightforward advertisement in the newspapers, and pay for it.

Now these are a few of the many ways of advertising, and the lady and gentleman doctors can take their choice.—*Exchange*.

Canadian Ingenuity.

MR. HUGH COCHRANE, of the *Montreal Witness*, sends *Printers' Ink* the two advertisements which are given below, and which would seem to indicate that our friends across the border are not behind the rest of the advertising community in ingenuity, at least:

This may look like poetry, but
It only demonstrates how easily
The eye may be deceived. The ear is
Sometimes deceived by the cry of

Low prices; and, when it refers to
Photos, the eye detects the bungling botch
Only after you have parted with your
Good stuff and had a holy show

Made of your features. If kind
Providence has bestowed facial comeliness
On you, and you expect further favors
From K. P., then permit Brown, the

Drayton Photo Artist, to embalm your
Beauty in his Superior Cabinets before
The "hen's claws" settle around your eyes
Thicker than snipe tracks in a mud flat.

Under the head of curious advertisements, the following from a morning paper of recent date will take high rank:

"WANTED—By a young man, room in private family where there is a young lady desirous of an escort to places of amusement. Address —, stating terms and locality."

This "young man" is doubtless sincere, and only lacks a little knowledge, perhaps, of the customs of the country. It would be interesting to note the number of replies received in answer to the accommodating spirit evinced in this card.

The First.—We regret to have to chronicle the first boating accident of the season, which took place on Tuesday last. It appears two men left here about 5 P.M. on the evening of that day, and when in the middle of the river a sudden squall struck their frail bark. They immediately put about and endeavored to reach the Canadian side, but owing to the sudden blow an oar was lost, so all chance of gaining shore vanished. They were about to abandon hope when one of them discovered he had on a pair of Jordan's cheap but serviceable boots. This saved his life.

Doctors and Dentists with American Diplomas.

ACCORDING to Dalziel's Berlin agency, (says the *Pall Mall Gazette*), by direction of the Privy Council, a census is being secretly taken of the number of doctors possessing American college degrees practicing medicine and dentistry in the empire. It is the intention of the government to interdict the carrying of an American doctor's degree, a title assumed here principally by dentists. In German colleges there is no such degree as "Doctor of Dentistry," consequently many German students matriculate at an American university, generally in Philadelphia, Baltimore, or New York. They graduate with the degree of D. D. S. (Doctor Dental Surgery), and returning to Germany place the prefix "Dr." on their door-plates. This is no longer to be permitted, as it is regarded as misleading to patients; an American medical degree being considered as next to valueless in Germany. In Berlin, at present, there are twenty-six German dentists with American diplomas. Their licenses will be taken from them unless they call themselves plain "Mr." If one may judge from recent expressions of opinion from the leading London dentists and from the action of the Odontological Society, which systematically ignores the American degrees, we should say that there is as strong a feeling in London against the assumption by dentists of the title of Dr. as in Berlin.—*Dental Register*.

European Recognition of our Colleges.—When we hear of certain medical colleges being recognized abroad, it means that under certain conditions the *time* is recognized that has actually been spent in study. In this country a course of three years' study is required to obtain the degree of M.D., while in Europe, I believe, that a course of seven years' study is obligatory. If a person holding the American degree of M.D. also holds the degree of A.M., A.B., Ph.D., or any other degree conferred by our universities, he would be credited in Europe with three years of study, and with an additional course of study for four years he would then be entitled to examination for graduation. This is what is known as a recognition of American diplomas.—*Dr. Carr*.

Our Dental Colleges, as well as our medical colleges, are to-day lowering the status of all professions by the cheap grade of instruction imparted by a spirit of rivalry and the mania that has sprung up in our profession of starting new dental colleges. This, if continued, will tend to degrade the standing of granting a diploma, the bad effects of some we have already seen, by the exposure made by these short-lived institutions in the way of bestowing honors. The profession does not need more colleges—it needs a better quality. The faculties of these could then be composed of the best talent and pecuniarily sustained. Able instructors could then devote their whole time and attention to their duties.—*Dr. J. H. Grant*.

Any one who, by his industry and perseverance, has qualified himself to pass a rigid and satisfactory examination without the aid of colleges, is entitled to take rank in any profession equal to those who, more favored by circumstances, have been able to avail themselves of the important and, to many, the necessary aid which the colleges afford.—*Dr. J. H. Grant*.

My observation has taught me that some teeth are not salvable, however early they come under the care of the dentist. I know teeth can be saved, and are saved, but there are some that our best care can retain in the mouth for only a short period. This is owing to inherent defect of structure or to systemic condition. There is a broad field for investigators to find out the reason and the prophylaxis of these constitutional weaknesses. I have a case in mind of a boy of four years of age whose premolars are absolutely dissolving away, and I know of nothing that can be done to save them. He said he had cut in and inserted fillings, in the hope that the resulting irritation would cause an increase of nutrition, and thus prolong the usefulness of the teeth, with, however, little success.—*Dr. D. R. Stubblefield*.

Separations and Contour Filling.*

DR. G. V. BLACK, JACKSONVILLE, ILL.

MY feeling is, that it is not necessary in this last decade of the nineteenth century to enter into any argument to maintain the statement, that spaces made between the teeth will soon close, and that the arch will contract to that extent, whether they be small or great. Separation with the ordinary separating file to make room to operate and then filling flush with this flat surface, was the rule of practice when I began filling teeth. Cohesive gold, which has made the building out of these lost parts practicable, has come into general use since, and as it came in, the flat surfaces were gradually driven out. This did not occur suddenly, but has come about by degrees; every step has been debated *pro* and *con*, and seemingly every phase of separation as to size, shape and the means of rendering them permanent, has been placed before the profession by staunch advocates of the methods, but in spite of all this such spaces have continued to close, the arch has continued to contract, food has continued to crowd on and irritate the inter-proximate gingivus, patients have continued to complain of not being able to properly masticate their food, till this old mode of practice has passed into practical oblivion among almost all of the more progressive men of the profession.

Still there are many men, here and there only, I hope, but yet far too many, who still indulge themselves with the easier method of separation and flat fillings, complaining that by the prevailing method multitudes of failures are following great and very fatiguing labor to both patient and operator. Do not the flat fillings fail also? Does any one believe that the men of thirty or forty years ago were saving teeth better than the men of to-day? Certainly not; nor nearly so well. No, the trouble is not with the improved plan, but with the execution of it; and those who fail to execute it well, whether through want of knowledge of the anatomy of the teeth, the forms of their inter-proximate spaces, or the mechanical skill and patient industry necessary for the reproduction of the best forms for the accomplishment of the ends sought, the saving of the teeth will be left behind in the race; and their patients will be known among those operators to whom they apply for relief as coming from dentists who have neglected their duty.

The worst forms of this neglect, or mistreatment with reference to the inter-proximate spaces, are those in which the evil has gradually grown on both operator and patient. A case which I have under treatment now will serve as an illustration: The man is aged fifty. He had fairly good teeth, but many proximal decays. He has been careful of his teeth to the best of his ability, and, of course, began having fillings made under the old rule of soft gold and separations with the file to give space for operating. This went on till most of the proximate surfaces had been filled; not only filled once, but very many of them refilled a number of times, and each time the file was used to give more space. This plan was continued up to the time when he first came under my care, a few months ago. The mechanical execution of the fillings has been fairly good, so he has lost no teeth. But most of the inter-proximate spaces are completely obliterated. That is to say, the necks of the adjoining teeth are in contact all around the arch, except the anterior lower teeth and two or three spaces in the back part of the jaw. Each time a separation has been made for room to work, the space has gradually closed. In this slow process of closure of spaces the molar teeth have imperceptibly moved forward, gradually shortening the length of the arch. The upper arch now measures a little less than four inches from posterior to posterior of the third molars; and, judging from appearances, the arch must have measured fully five inches, or was of average size originally. The contraction is sufficient to materially modify the expression of the countenance, and, as the gentleman is rather thin in flesh, this gives the features an unnaturally pinched expression.

* Read before the Odontographic Society of Illinois.

In this movement the inter-proximate gingivæ have been destroyed in some persons so completely that there is no soft tissue between the proximate surfaces further crown-wise than the gingival line, and even on the neck portion of the roots there must be but a mere trace of peridental membrane reaching across from the one root to the other, without a bony septum. This slight and much-crowded tissue is kept in a state of irritation by the wedging of food against it, rendering mastication difficult and painful.

This is an extreme case, and one for which the foundation was laid in what may be considered the olden times of dentistry, and before the Arthur method of separation, with its improvements and serious evils, was devised; when the separation was made with the common separating file, leaving flat surfaces. The Arthur method, tho so imperfect as to have passed into oblivion, was really an attempt to partially save the inter-proximate space by so cutting that the V-shape produced should open to the lingual surface, leaving contact points near the buccal angle. The beginning of the treatment of this was justifiable as being in accordance with the then prevailing method. But the continuance of that plan of treatment up to the present, in the light of the progress made, cannot be justified.

Cases of this extent of contraction from the closure of the proximate spaces are rare, and I hope may be more rare in the future; but there are many of lesser extent continually presented for treatment. Very many of these are cases of improper previous treatment. A very common case is that in which the first molar has had a large mesial cavity, and has fallen forward on the second bicuspid to such an extent as to wholly obliterate the inter-proximate space, and has been filled in this position, leaving a flat surface which touches the whole length of the crown of the bicuspid, or touches at the necks of the teeth only. In these cases we generally find almost continuous discomfort, or frequent pain from forcing food between the teeth in mastication. Generally these are easy to remedy, especially if the patient is yet young. A properly adjusted rubber wedge worn for a week will make a considerable space. But it is generally better to keep the wedging going continuously after it is begun by substituting a thicker wedge every second day till the space is sufficient.

The amount of space necessary to gain is often considerable, in some instances being from ten to fifteen hundredths of an inch; and it should be pursued persistently till the proper space is attained. The soreness of the teeth, which is the annoying feature of the proceeding, usually passes away within three or four days, tho the wedging be actively proceeding, and the last part, tho slower, is easier than the first. In some the cusps of the teeth of the opposing jaw strike into the sulci or fosse of the teeth, being moved in such a manner as to seriously hinder the movement, then proceedings of sufficient vigor to create enough soreness to prohibit pressure on the teeth effective, or a very slow movement may carry the apposing teeth with it. Sometimes, the anterior teeth will be moved forward instead of moving the molars backward. Ordinarily this should not deter the movement being made sufficient to gain the best form of inter-proximate space; for after the operation is completed the inclination of the anterior teeth to return to their former position, especially as the pressure of the lips aid them, will generally be sufficient to drive back the molars and thus re-adjust the arch.

A few months ago a young lady was brought to consult me with reference to her upper central incisors. Through some neglect after breaking of the mesial angles of the teeth they had dropt together, and had been suffered to decay badly either through carelessness of the patient, or parents; or the incompetency of the operator who, for some years, had been looking after the case. The teeth were strongly bell-crowned with narrow necks. When I first saw them the centrals had each lost about one-half of the width of its cutting edge, each was filled with gold and sloped from the gingival line at the mesial surface flat to what would be the center of the cutting edge, and these flat surfaces were in apposition through their full length. The laterals had dropt against the centrals and the cuspid against the laterals, so that the whole

front of the arch was narrowed ; and the lower incisors lapt on each other. This disfigured the mouth and effectually destroyed the good expression that it evidently once had. I at once undertook to restore the teeth and arch to their former symmetry, and gradually widened the arch and separated the centrals sufficiently to fully restore their contour with gold ; and also the contour of the unusually broad inter-proximate space, and had the pleasure of seeing the inter-proximate gingivus fully restored within a few months. This also restored the contour of the mouth and features as well !

These are among the worst forms of obliteration of inter-proximate spaces met with in our practice. But forms of lesser note and more easily remedied are met continually in city and country. I am sorry to say both are too often being neglected to the great discomfort of patients. The now very general practice of gaining room for filling by wedging is rapidly diminishing the number, but there are yet far too many operators who are careless in this regard. But much too often the gaining of room to operate is the end sought rather than restoration of the inter-proximate space. I have come to abominate the expression of "wedging to gain access to the cavity," as if that was the only object. Access can generally be had without wedging, by opening the cavity properly. The object of separation by wedging is to properly form and finish the proximate surface.

It is often so easy to use a thin file and gain a little room for filling for a patient who lives at a distance, and then in finishing the filling with disks this little space is easily doubled and then allowed to close almost as quickly as the fee is pocketed. After a year or two it becomes necessary to fill the opposite surface. This is done in the same way, cutting again for room, and the inter-proximate space is so reduced as to be uncomfortable. In the event of refilling it is obliterated so completely as to leave flat surfaces in contact to, or near, the gingival line. There is no longer a reasonable excuse for this kind of neglect of duty.

Often young people come to us who, for a time, neglected their teeth, and perhaps have large cavities in the mesial surfaces of the first molars. When this occurs early in life the teeth move forward readily, and it frequently happens that the distal surface of the second bicuspid is already in the cavity of the molar and the necks of the teeth are in contact. The molar has leaned forward and the bicuspid has moved backward ; there is no opportunity for wedging to return the teeth to their proper relative positions. I am constantly meeting with these cases, which have been filled as they stood, cutting from the molar for space in which to finish the filling. The proper procedure with these is to first excavate the cavity and treat the pulp, or pulp chamber, if that is required. Then make a temporary filling. This should generally be of oxyphosphate of zinc. But in very large cavities, and especially those in which the pulp chamber is involved, the chamber and the bulk of the cavity may be filled with gutta-purcha, for convenience in removal, and then faced with oxyphosphate against which to place the wedge. An ordinary rubber wedge may be placed between this and the bicuspid without impinging on the gum, and allowed to separate the teeth as far as it will. Then a larger wedge may be used, or the space gained may be filled out with oxyphosphate (after removing just enough of the old to gain a hold for the new) and another thin wedge used. In this manner the full inter-proximate space may be reformed and comfort restored.

The old excuse for failure to contour these teeth, *i. e.*, "the tooth is too weak to sustain the contour filling," is no longer applicable. If the tooth is so badly decayed that it cannot be made serviceable by filling, it can be made good by the use of a shell crown. But, having decided on the crown, it does not reduce the obligation of the dentist to contour the inter-proximate space. You may make a club of a grinding surface not resembling a tooth, and it may grind food well, but, if the inter-proximate space is wrong, it will be uncomfortable and the adjoining teeth will soon decay. The tooth should first be placed in proper position, and then the crown should be belled out to fill its proper space. The inter-proximate space is just as

important, except as to the recurrence of causes, between artificial crowns set on the roots of teeth as between the natural crowns. No inter-proximate space is comfortable without a healthy inter-proximate gingivus that has room for proper circulation of blood and the functions of regeneration of its own tissues, and is comparatively free from injury in the act of mastication of food, or the crowning, lodgment and decomposition of particles of débris.

What I have said thus far relates to the worst instances of neglect of duty ; but the same principles apply to all of the teeth. The dropping together of any of the teeth is a serious evil, and this evil is greater between the molars or first molars and second bicuspid than between any other teeth. These have to perform the heavy work of mastication, and faulty inter-proximate spaces make mastication difficult and painful, and interferes with the preparation of food for digestion. Furthermore, the teeth in moving forward often tilt so much out of position that the proper occlusion is interfered with. The cusps no longer fit properly into the sulci, and the occlusion is rendered faulty in many ways. Indeed, I have seen many cases in which the obliteration of a few inter-proximate spaces has done greater harm than the loss of a tooth would have done. It often happens that the closing of the inter-proximate space between the lower first molar and second bicuspid throws the occlusion of all the molar teeth of that side into an unnatural position, and seriously injures their usefulness. Injury always occurs from the closure of a few inter-proximate spaces in any part of the mouth, and the consequent derangement of the occlusion which results. Much has been said in the past of permanent separations. Prominent cusps, fitting into deep sulci, have been depended on to prevent movement of the teeth, and other devices brought into requisition, such as building on prominences or their separations, etc. The experience of the past shows that none of these can be depended on. Cusps wear rapidly when the extra pressure of movement is brought against them, or they are jumped from one sulcus to another, and in the end the space is closed. No device has ever been so effective as the well-formed proximate surface built out with gold.

It seems to me needless to enter into further argument here to show that generally these spaces will close and the arch contract. Any one of long experience will be able to point to such spaces that have been held apart by prominent cusps or some other feature of the occlusion ; but these are exceptions to the rule. The law is that contraction does occur, closing such spaces ; and more than this the law is also, that the space, if maintained, is an unmitigated nuisance.

The ordinary separating file should no longer be used in forming proximate surfaces as it is not adapted to the work. Neither have we in the market instruments that seem to me to be well suited for it. For a good many years I have either made my instruments myself or had them made to special patterns.

Some very thin files and saws adapted to frames are now to be had that answer fairly well. The frames I am using I made myself twelve or fifteen years ago. I use fine saws much more than the files, generally turning the cutting edge toward the occluding surface of the tooth to prevent lacerating the gum, and doing in this way most of the coarser trimming. Seven or eight years ago I had some oval surface files made which assisted in shaping the proximating surfaces of many of the teeth. A file with a flat surface is only fit for rough trimming. Finally, the finer part of the work is done with the draw files, file cut, and ground, which I have generally made myself. Instrument makers have always told me they could not sell these instruments. As to disks, I but rarely use any but the rim disks on proximate surfaces, using tapes much more than disks. The ordinary disk is too liable to cut at the contact points, injuring the form there before anything is accomplished toward the gingival margin of the filling. Much of the trimming about the angles may be quickly done with gum-lance-shaped, or three-edged plug-trimmer, and with chisels.—*Dental Review.*

National Association of Dental Faculties.

THE seventh annual session of the National Association of Dental Faculties was held at Excelsior Springs, Mo., commencing Monday, August 4, 1890.

The following colleges were represented :

Baltimore College of Dental Surgery, M. Whilldin Foster.

Boston Dental College, Wm. Barker.

Chicago College of Dental Surgery, Truman W. Brophy.

Kansas City Dental College, J. D. Patterson.

Missouri Dental College, W. H. Eames.

Ohio College of Dental Surgery, H. A. Smith.

Pennsylvania College of Dental Surgery, C. N. Peirce.

University of California, Dental Department, C. L. Goddard.

University of Iowa, Dental Department, A. O. Hunt.

University of Michigan, Dental Department, J. Taft.

University of Pennsylvania, Dental Department, James Truman.

Vanderbilt University, Dental Department, D. R. Stubblefield.

Louisville College of Dentistry, A. Wilkes Smith.

Indiana Dental College, J. R. Clayton.

Dental Department of Southern Medical College, L. D. Carpenter.

Dental Department of University of Tennessee, R. B. Lees.

University of Maryland, Dental Department, John C. Uhler.

Columbian University, Dental Department, H. B. Noble.

On motion, Dr. J. D. Patterson, Kansas City, was elected Secretary *pro tem*.

The following resolution, offered by Dr. Hunt, was adopted :

Resolved, That in all colleges of this Association students to be graduated at the expiration of two years after admission must enter the school not later than twenty days after the opening of the regular session following this meeting.

The amendment to the constitution, laid over from last year, providing for changing the name of the Association to American Association of Dental Faculties, was lost.

Applications for membership laid over from last year, under the rules, were taken up, and the following were admitted: Royal College of Dental Surgeons of Ontario; College of Dentistry, Department of Medicine, University of Minnesota (represented by Dr. W. X. Sudduth); American College of Dental Surgery (represented by E. P. Hazen).

The following applications for membership were laid over under the rules: Dental Department of Howard University, Washington, D. C., and College of Dentistry, University of Denver.

The resolution offered by Dr. Patterson, and laid over last year, under the rules, was taken up, amended, and adopted as follows :

Resolved, That after the session of 1890-91 a diploma from a reputable medical college shall entitle the holder to enter the second course in dental colleges in this Association, but he may be excused from attendance upon lectures and examinations upon the following subjects: general anatomy, chemistry, physiology, and materia medica and therapeutics.

Dr. Marshall's amendment to the constitution, providing that in all matters not in conflict with Article V of the constitution a majority of the colleges belonging to this Association shall constitute a quorum, was taken up and adopted.

The following resolution, offered by Dr. Hunt, was adopted :

Resolved, That we recommend that students take two full courses in studies of a general character, such as anatomy, physiology, chemistry, general principles of surgery, and materia medica and therapeutics, and three courses in those of a special dental character.

Dr. Goddard offered the following resolution, which was adopted :

Resolved, That final examination may be taken at the end of the second year in three general studies.

The following, offered by Dr. Truman last year, and laid over under the rules, was adopted :

Recommended, That for a full annual course of lectures the minimum sum of college fees be \$100; that diploma fees be omitted, and an examination fee of not less than \$25 be substituted therefor and made non-returnable; that a matriculation fee of \$5 be charged annually. Special course fees to be \$10 for each branch taken, and \$5 matriculation fee.

The following officers were elected for the coming year : L. D. Carpenter, Atlanta, Ga., President; W. H. Eames, St. Louis, Mo., Vice-President; J. D. Patterson, Kansas City, Mo., Secretary; H. A. Smith, Cincinnati, Ohio, Treasurer; J. Taft, Cincinnati, Ohio, Truman W. Brophy, Chicago, and A. O. Hunt, Iowa City, Iowa, Executive Committee.

The following committees were appointed : James Truman, Philadelphia; Frank Abbott, New York; and John S. Marshall, Chicago, *ad interim* Committee. J. A. Follett, Boston; D. R. Stubblefield, Nashville, Tenn.; A. Wilkes Smith, Richmond, Ky.; C. L. Goddard, San Francisco, Committee on Schools.

Adjourned to meet on Saturday, August 1, 1891, at 10 o'clock A. M., at the place appointed for the next meeting of the American Dental Association.

National Association of Dental Examiners.

THE ninth annual meeting of the National Association of Dental Examiners was held at Excelsior Springs, Mo., commencing Monday, August 4, 1890.

The following State Boards were represented :

Colorado, Dr. P. T. Smith.

Illinois, Dr. C. R. E. Koch.

Iowa, Drs. S. A. Garber, E. E. Hughes, and E. D. Brower.

Pennsylvania, Dr. Louis Jack.

Maryland, Dr. T. S. Waters.

Kansas, Drs. L. C. Wasson and A. M. Callahan.

Ohio, Drs. J. Taft and H. A. Smith.

Minnesota, Dr. J. H. Martindale.

During the sessions, the Board of Registration in Dentistry for the State of Rhode Island and Providence Plantations, represented by Dr. Wm. P. Church, was elected to membership.

In the absence of the Secretary, Dr. F. A. Levy, Dr. J. H. Martindale, of Minnesota, was elected Secretary *pro tem*.

After discussion, the following resolution, offered by Dr. Jack, and amended by Dr. Koch, was adopted, on motion of Dr. Taft :

Resolved, That this body recommends the various examining boards, under all circumstances, to grant temporary licenses to dental students at any period of their course of instruction, whenever their State laws will permit them so to do.

Drs. Jack, Garber, and P. T. Smith were appointed a committee to formulate the principles which this association would recommend should be incorporated in the State laws. This committee subsequently presented a report, which, as amended and adopted, recommended the following principles for incorporation in laws for the regulation of dental practice or for the guidance of those framing them :

1. The creation of boards of examiners in each State.
2. The boards to be officially created by the constituted appointing power of the various States, the appointees to be selected from a number of names presented by the representative State societies; each State society, at its annual meeting, placing in nomination not more than two names for each appointment to be made.
3. Recognizing five years' actual practice at the time of the passage of the law, as qualifying for the continuance of practice.
4. Empowering the examining boards to examine and grant certificates to non-

graduates, provided the candidates present satisfactory evidence of having had at least five calendar years of instruction.

5. These, and all other examinations, to be both oral and written, and candidates to be also subjected to tests of practical skill.

6. Empowering the boards to examine graduates in dentistry.

7. Prohibiting medical graduates, without special qualifications, practicing dentistry.

8. Requiring medical graduates to have their special qualifications determined by the same tests as other non-graduates in dentistry (see No. 5).

9. Making failure to pass the required examination in any one branch sufficient cause for refusal to grant the certificate.

10. Making failure in the practical tests in either of the two general departments of dentistry work disqualification.

11. Expressing the opinion that examinations for the special degree in dentistry should be conducted by a board of examiners established by law in each State, instead of by faculties, as at present; and the belief that the power to grant degrees must at length become vested in boards created for the purpose.

12. Conferring on State boards the power to revoke, for cause, a certificate of qualification previously granted.

The secretary was directed to call the attention of the American Dental Association to the fact that a case involving the constitutionality of the law regulating the practice of dentistry in New Hampshire is now pending in the Supreme Court of the United States, and asking them to see to it that it does not go by default.

Dr. Koch, from the Committee on Dental Colleges, reported the following schools, the diplomas of which this Association recommends that the State boards endorse:

American College of Dental Surgery, Chicago, Ill.

Baltimore College of Dental Surgery, Baltimore, Md.

Boston Dental College, Boston, Mass.

Chicago College of Dental Surgery, Chicago, Ill.

College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.

Dental Department, Columbian University, Washington, D. C.

Dental Department of Northwestern University, Chicago, Ill. (Now University Dental College.)

Dental Department of Southern Medical College, Atlanta, Ga.

Dental Department, University of Tennessee, Nashville, Tenn.

Harvard University, Dental Department, Cambridge, Mass.

Indiana Dental College, Indianapolis, Ind.

Kansas City Dental College, Kansas City, Mo.

Louisville College of Dentistry, Louisville, Ky.

Minnesota Hospital College, Dental Department, Minneapolis, Minn. (Defunct.)

Missouri Dental College, St. Louis, Mo.

New York College of Dentistry, New York, N. Y.

Ohio College of Dental Surgery, Cincinnati, O.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.

Philadelphia Dental College, Philadelphia, Pa.

School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.

St. Paul Medical College, Dental Department, St. Paul, Minn. (Defunct.)

University of California, Dental Department, San Francisco, Cal.

Northwestern College of Dental Surgery, Chicago, Ill. (The diplomas of this college are discredited after 1889.)

State University of Iowa, Dental Department, Iowa City, Ia.

University of Maryland, Dental Department, Baltimore, Md.

University of Michigan, Dental Department, Ann Arbor, Mich.

University of Pennsylvania, Dental Department, Philadelphia, Pa.

Vanderbilt University, Dental Department, Nashville, Tenn.

The following officers were elected for the ensuing year: C. R. E. Koch, Chicago, Ill., President; L. C. Wasson, Topeka, Kan., Vice-President; J. H. Martindale, Minneapolis, Minn., Secretary and Treasurer. The President appointed as the Committee on Dental Colleges, Drs. Louis Jack, T. S. Waters, E. E. Hughes, W. P. Church, and J. H. Martindale.

On motion, the following committee was appointed to consider the advisability of holding the meetings at some other time and place than the annual meetings of the American Dental Association, with discretionary power in the matter: Drs. J. Taft, F. A. Levy, and S. A. Garber.

Adjourned to meet at the call of the President.

Union Dental Convention, Department of Exhibits, October 28-31, 1890, in Berkeley Hall, corner of Berkeley and Tremont streets, Boston, Massachusetts.—The following fourteen societies will hold a union meeting: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut State Societies; American Academy of Dental Science, Connecticut Valley Dental Society, Harvard Odontological Society, Harvard Dental Alumni Association, Boston Dental College Alumni Association, Boston Society of Dental Improvement, Worcester Dental Society, New England Dental Society.

You will observe by the above list that we are to have the largest and most representative meeting of the dental profession ever held in this section of the country.

All persons having articles, instruments, and materials of use in dentistry, are cordially invited to present them. Many have already signified their intention of making a large exhibit, and if you desire space, please notify the Secretary at once, giving the amount of space you can occupy well, whether floor or table. All applications should be made before September 15.

Programs, with list of exhibitors, issued October 1.

WM. P. COOKE, D.M.D.

W. E. PAGE, D.M.D.

H. S. DRAPER, D.D.S.

Exhibit Committee.

Applications to be made to either of the Committee, or addressed to the Secretary.

WM. P. COOKE, D.M.D., *Secretary.*

100 Boylston street, Boston, Mass.

"Ne Sutor Ultra Crepidam."—*Virgil.*

IT would appear, from what transpired at the meeting of the First District Dental Society, and from what is current talk, that the Chairman of the Law Committee is having a hard time of it to raise money to enforce the dental law, as enacted. Thus far he has expended about fourteen hundred dollars from his own purse to further the prosecution, and bring the violators of the law to justice, which sum has not been paid back. If the Society wants such a law as has been passed, they ought to furnish their Chairman with means by which he can enforce it. As the case stands now, he is the only zealous party, and when lawyers or prosecuting officers part with their own money it argues well for their sincerity, and more may be said for their zeal than for their discretion. It is a trite saying among lawyers, "Never make your client's case your own, as clients generally prove ungrateful after the work is done; therefore, get your fee in advance." It would seem as if there was always a chance to apply the maxim. The lawyer who appears in his own behalf to argue a case, generally has a fool for a client.—*D., in Dental Advertiser.*

A Practical Method of Electro-Gilding Gold Dentures, Bridge-work and Collar Crowns.

H. FIELDEN BRIGGS, D.D.S. MICH., I.D.S. GLAS.

FIRST prepare in the following manner a stock solution of gilding fluid. (1) Take of pure gold thirty grains and digest in aqua regia ($\text{HNO}_3 + 3\text{HCl}$); (2) evaporate *almost*, but not quite, to dryness; (3) dissolve this in twenty ounces of water; (4) then add half ounce of cyanide of potassium. This fluid will last a long time, and should be kept in a bottle ready for future use at any time.

To Gild.—Heat gilding solution in jar in saucepan of water to about 150° Fahr. While this is heating, polish the denture with whiting, wash well with plenty of soap, and place it in a basin of clean water; then avoid handling or exposing it to the air.

Attach to the positive electrode a thin sheet of fine gold, which should be not less in area than the piece to be gilded.

To the negative electrode attach the denture. When the gilding solution is heated, place the positive and negative electrodes, with their attachments, in it.

In a few minutes a dull brownish-yellow deposit will be found on the denture. Polishing on the lathe with whiting will produce a rich, deep gold appearance, giving the plate uniformity of color, obscuring the distinctness between it and the solder, and giving a perfectly finished aspect which lasts for many years.

By using a battery of six (one quart) Leclanché cells, and keeping the sheet of gold always attached to the positive electrode, a piece can be gilded at any time in a very few minutes.—*Dental Record*.

Hemorrhage.—The interesting case of hemophilia recorded in the May number of *IREMS* reminds me of a duty I owe to the dental profession and to humanity to give a simple and efficient remedy against dangerous hemorrhage after tooth-extracting. The patient can apply it at home with certain results. In no case in twenty-five years have I known it to fail in a single instance. It obviates all danger of great loss of blood.

I do not know Dr. Neal's method in extracting, but it is a sad fact that instead of *extracting*, too many dentists are in the habit of literally *cutting out* teeth, by grasping with the forcep and cutting through gum, alveolar process and all. This induces excessive bleeding by a cruel laceration of the tissues, and rupture of blood vessels; besides making the work of removing a tooth much more difficult than by the more rational method of placing the instrument as an operator of judgment would naturally do, and with humanity forewarned, *lifting* by lateral movements, the organ from its socket.

When apprehensive of excessive bleeding, as in hemorrhagic diathesis, the patient should be instructed to place the feet in water as hot as can be tolerated, and keep up the temperature for twenty minutes, with free and repeated applications to the head of cloths or towels rung out of ice-cold water, and worn as a skull cap, completely enveloping the head. This is equally effective in bleeding from the nose, etc. The philosophy of this method lies in equalizing the circulation and restoring a normal flow of blood through the system.

Nasal Polypi.

BELL describes a new, painless and simple method of removing nasal polypi. His patient is instructed to blow strongly through the affected nostril, while he closes the other with his fingers. This brings the polypus down so that it can be seen. He then injects into the tumor, with a hypodermic syringe, fifteen or twenty minims of a solution of tannin in water (twenty grains to a fluid dram). In a few days the tumor shrivels, dries up and comes away without trouble or pain, the patient usually removing with his fingers or by blowing his nose.—*N. Y. Medical Times*.

Ether Spray.

WE frequently find patients with discolored teeth, indicating dead pulps, and no reason assigned for this condition. I recall two cases now, or rather one case of two teeth, where two central incisors with small gold fillings were discolored. I inquired if the nerves had been destroyed in the teeth, and the patient said no. On further inquiry I found they were sensitive, and the ether spray had been used very freely at the time the excavations were made for filling. That is but one case, and yet quite a number of such have come to my notice in my practice. The delicate organ of pulp will not bear any rough usage, and I am satisfied that even the ether spray, which is considered so harmless, may, and frequently does, cause destruction of the pulp; so that, while I once used it quite extensively, I have ceased its use as a pain obtundent for sensitive dentine. I had one case a few years ago, when cocaine was first being introduced into the dental profession, where I applied it very freely in a test case to see if I could not obtund the sensitive condition of the teeth. I applied it several times in fifteen or twenty minutes, and found but little satisfactory results, not as much as if I had kept the teeth perfectly dry that length of time. I proceeded at last, however, to fill the tooth in the ordinary way, and a few days later the lady appeared with that tooth discolored the deepest red or purplish color I ever saw in teeth. You can imagine my feelings when I discovered the condition of that tooth. It was a distinct discoloration, indicating that the tubuli were filled with blood, and I was unable to entirely bleach it. I have known of one or two other cases of this kind in the hands of other operators, and especially so when anything is done to destroy the vitality of the entire pulp temporarily, or when we inject into the circulation. I believe that carbolic acid and preparations of that kind when applied to the terminal points of nerve tissue will devitalize these points, and thereby destroy the keen sensitiveness that would otherwise be experienced.—*Dr. I. P. Wilson.*

Burs, after becoming unfit for excavating, are useful for cutting down the gold filling in a crown or buccal fissure. Alcohol used on them prevents heat, and the cuttings are easily blown from the surface of the filling, as it dries quickly, enabling close scrutiny and perfection of the case. By this means, too, all of the gold cuttings are finally taken from the rubber by the use of a spoon, one made from the metal back of a broken mouth mirror answers well; an astonishing amount of gold is saved in this way, at least enough in a year for a spring suit. Oiled strips may be burned and the gold, of which much adheres thereto, saved. This idea is from Prof. Watling, Ann Arbor.—*J. R. Bell.*

The Rise in the Price of Platina.—This is through no speculation or selfish control of price, but because not enough can be found to supply the demand. Not long since, when Thomas Edison found this would inevitably be the fact, he sent agents all over the world to stimulate its production, but without much success. And now, to still further enhance its price, China and Japan are finding new use for it. We are told that one firm in China, that has heretofore used but small quantities, has just sent an order to this country for a million dollars worth.

If Fistulous Opening through the gum exists, immediate root-filling may often, perhaps always, be permissible. There is a perfect drainage through the fistula, and it is possible to reach the point of infection, if necessary, through it. There is a question, however, whether it be not sometimes better to keep the canal open, and to treat through it, especially if there be free communication through the foramen, than to run the risk of a necessity for attempting to follow up the fistula through its usually tortuous course, for sometimes the opening is at considerable distance from the disease center. An opening might, of course, be made through the external alveolar plate, but this surgical interference is what we usually desire to avoid.—*Dr. W. C. Barrett.*

K. Nakamura (Japanese Student.)

THREE years ago Nakamura came to America from Tokio, Japan, to study medicine and dentistry, and graduated at the Philadelphia Dental College last spring, and is now taking practical instructions in prosthetic dentistry at the school of Dr. J. W. Moffit, 1630 Arch street, Philadelphia. After all his purposed studies are finished he will return to Tokio, Japan, where he hopes to establish a dental school, and introduce many new and useful methods to his own people. He visited Europe and America eight years ago for observation. His present is his second visit.

M. Nakamura, his father, was the first Japanese sent abroad by the Japanese government. He traveled with eight students. His early life was spent in the study of Japanese and Chinese literature and poetry. When aged twenty-seven (in 1859) he was appointed one of the tutors of the Tycoon, who was then ruler of Japan. In 1863 his father was educated in England, from whence he imported into Japan many European opinions, sciences and customs; and by his many works of translations he became famous in literature. Among the works of his translations were religious books, through which he encouraged his own people to be converted to Christianity. He is living now in Tokio, and has a large English private school; he is a member of the House of Lords, and also Director of the Imperial Female Normal School, Tokio, Japan.

The English H.

BY AN ENGLISHMAN.

EDITOR ITEMS:—In reading your report of the discussion of removable bridge-work, at the meeting of the New Jersey Society, I notice Dr. Pamley Brown is reported as saying, "Over in England they told me most of the bridges were 'anging haround hon one 'inge," etc. May I point out that the members of the dental profession in England, as far as my experience of eight years goes, are drawn from a class that do not abuse the aspirate, and Dr. Brown might ransack the whole East End of London and not find a cockney who would murder the letter "h" in the way he represents it as being done. There are plenty of peculiarities in the speech of the English to make jokes about, without evolving impossible ones out of one's own head. The law governing the omission, or wrong retention, of the little letter h, by the lower classes in this country, is, I admit, obscure; but broadly speaking, it is due to mutual laziness and a desire to say things the easiest way. A cockney says an "'orse" simply because it is less effort than to say "a horse," as any one can see by saying it himself. He says "a-oil painting," running the first two words together, for the same reason, but he never, as my experience goes, makes use of any expression that is distinctly more difficult to say than the correct one.

7 Wimpole St., London.

CHARLES RATHBUN.

Hemorrhage.—The following might interest some ITEMS readers:

Monday forenoon, June 23, I extracted an upper left second molar for an anemic, delicate young man. No unusual hemorrhage occurred till the following Sunday evening, then excessive hemorrhage set in from the posterior socket, and continued till 5 A. M., Monday, when I was called. The hemorrhage ceased immediately on plugging the socket with Monsell's solution, but the gentleman was so weak that he could not attend to work for about three days.

There was no hemorrhagic history in either the gentleman or his family.

Can the lapse of time between extraction and hemorrhage be accounted for by your readers?

Yours,

H. R. PETERS.

Repairing Gold Fillings.—It is claimed as a novelty in the method of repairing gold fillings building directly on the gold after it was annealed in the tooth. A separate flame and a chip blower to blow the flame on to the freshly-filed surface of the gold was for some time used by Mr. S. S. Southruth, and from this has been evolved the present appliance.

For Our Patients.

A Serious Time.

PUT away the beefsteak, Mollie ;
 Chop the cutle into hash ;
 Turn the solids into salads ;
 Crush potatoes into mash ;
 Bake the rice in little patties ;
 Have the mush with dressing mixt,
 For the hour is fraught with danger—
 Papa's teeth are being fixt.

Mix the festive pancake batter ;
 Chop the lobster into bits ;
 Fry the soft and plastic doughnut,
 That the grinder never grits ;
 Cut the bread in yielding slices,
 Lay an oyster in betwixt—
 Banish all the pleasant solids—
 Papa's teeth are being fixt.

—*Ann Arbor Chronicle.*

Temporary Teeth.

I WANT to impress the importance of saving the temporary teeth. If the temporary molar is extracted, we find the bicuspid will work forward and destroy the proper articulation of the teeth. If you will take models of jaws from which the temporary molars have been extracted, you will find the permanent teeth are from one-thirty-second to one-fourth of an inch too far forward. If only one has been extracted that side will be found so, while on the other side the teeth will retain their position. The power of the jaw is so great that unless the teeth antagonize properly they will be constantly forced forward, for the shape of the crowns and the movements of the jaw both tend to force the teeth forward, and when these molars are forward of their proper position they cause the anterior teeth to project. This is one of the local causes of irregularity of the teeth.

If all the members of a family, with average good teeth to begin with, would visit a capable dentist two or three times a year, he ought to be able to prevent the loss of any of the teeth. It is difficult to get many people to do this ; they usually visit the dentist only when decay has progressed so far as to cause suffering, and in many cases too late for the preservation of the tooth. Some dentists succeed in getting their patients to visit them at stated times, others have chiefly a transient practice. I insist on seeing my regular patients from two to four times a year.

There is great difference in different communities as to the quality of the teeth. Some years ago I attended a meeting of dentists in St. Louis, and while there was impressed with the large proportion of complete and beautiful sets of teeth. I do not know why the teeth in some communities are so much better than in others. In wealthy communities the teeth are better cared for than among poorer people ; but it is not all a question of care, but seems to be partially at least affected by locality.—*Dr. Talbot.*

The teeth are the hardest and most enduring structures in the human organism, and when we have the proper knowledge of how to preserve them they will be the last to yield to disease, as they are the last to yield to the powers of decay after death.—*Dr. Williams.*

Sponge grafting and the use of the sterilized sponge in inducing reproduction of hard tissue, as secondary dentine over exposed pulps is of importance. I want to say that I never have found a case in which the sterilized sponge was properly enclosed, so as to fill the cavity of lost tissue, that has not seemed to do what the intention was—reproduce the tissue, and without the appearance of a single drop of pus. In some instances I have had to clip a sponge that did not fill in with coagulum, and repeat the process several times, introducing a new sponge, till it was finally

successful. In three or four cases I have had complete failures; sometimes from my ignorance, and sometimes because the patient did not give me the opportunity to finish the operation.

The sponge is what is called silk sponge; the finest Turkish variety. It is sterilized by placing it in a solution of bichloride of mercury, one grain to the ounce of water, raising the heat to 130° Fahrenheit, and keeping it between that and 164°; never exceeding 164°. If we push the heat beyond 164° we deprive the sponge of its protoplasmic condition, and it does not become incorporated into the new growth.—*Dr. W. H. Atkinson.*

Medicine in Vegetables.—The following information may be useful to some, if not new to many: Spinach has a direct effect on the kidneys; a common dandelion used as greens is excellent for the same trouble; asparagus purges the blood; celery acts admirably on the nervous system, and is a cure for rheumatism and neuralgia; tomatoes act on the liver; beets and turnips are excellent appetizers; lettuce and cucumbers are cooling in their effects on the system; onions, garlic, leeks, olives and shallots, all of which are similar, possess medicinal virtue of a marked character, stimulating the circulatory system, and the consequent increase in the saliva and gastric juices, promoting digestion; red onions are an excellent diuretic, and the white ones are recommended to be eaten raw as a remedy for insomnia. A soup made of onions is regarded by the French as an excellent restorative in debility of the digestive organs.—*Herald of Health.*

Paid in His Own Coin.—**FAITH CURIST**—Bad toothache, eh? Well, sir, we'll cure that in less than no time. You just sit down there, fix your mind on something else, and imagine that your toothache has all gone. (After a pause of five minutes)—There, isn't it gone?

PATIENT—Y-yes!

FAITH CURIST (as patient starts to go)—But, ahem. You haven't paid me my charges! Five dollars, please!

PATIENT—Oh, that's all right. You just sit down there, fix your mind on something else, and imagine that you've got your money. Ta, ta!—*Lawrence American.*

"Uncle Pomp," said Colonel M. to a former slave, "I hear some of you darkies down on the lower place are afflicted with the itch."

"Bein' as it's you, boss," replied old Pompey, hesitatingly, "I mus' confess dat the Lawd has seen fit to afflict us dat way for a fac."

"Ah! Doing anything for it?"

"Yes, sah. Oh, yes, sah."

"What?"

"Why, we—er—we am scratchin' for it."—*Dixie Doctor.*

The Youngest Great-Grandmother lives near Pomona, Cal. Her name is Francesca Cordolla and her age is but fifty years. She was married when but fifteen years old, and her eldest daughter married when she was a little over seventeen years old. Mrs. Cordolla was but thirty-three years old when she was a grandmother. Her eldest granddaughter was married last April at the age of fifteen years, and now a great-granddaughter is born.—*The Sanitary Era.*

A Lay Sermon.—The best thing to give to your enemy is forgiveness; to an opponent, tolerance; to a friend, your heart; to your child, a good example; to your father, deference; to your mother, conduct that will make her proud of you; to yourself, respect; to all men, charity.

Everybody's making mistakes—yet the greatest mistake of all is stopping to worry over those mistakes.

Editorial.

Our Dental Colleges.

THERE is evidently an advance all along the line. We never had more students in college and never had better instructors. In some of our colleges the income is so good it is not necessary for the professors to teach on a meagre salary, and give only a part of their time to the college, because they cannot afford to be away from their private practice; and they are not obliged to read the same old lectures over and over and over again, at each session, because they have no time to improve on them. They advance with the advance of the profession, and are able to present to the students the multitude of improvements, discoveries and advanced attainments of our foremost operators and scientific thinkers.

Would it not be a nice thing if all our dental schools were of this class? But they are not, tho all are improving. And all *must* improve to meet the imperative demands of the day. Soon the question asked by our young men, contemplating a dental education, will be not Where can I most easily and speedily get through? but Where can I get the most thorough instruction and attain the most skilful practice? They will not be content with a course of stuffing and superficial instruction under "assistant demonstrators" that are hardly their own seniors in age or practice.

In some of our colleges the professors themselves are the demonstrators, giving the class the minutest details of operative and prosthetic dentistry. They actually watch and direct the students in their efforts, and see that they practice what they are taught in theory. It should be so in all the colleges. To allow students merely to see gas and ether and chloroform administered is not enough, they must be taught to give these anesthetics themselves. To simply *show* students how to take impressions of the mouth, and how to make articulations, are not enough, they must *do* these things. "Making a case" should not be one of the first things done, but one of the last things; it should not be simply a fancy plate to be put away in the cabinet of the college, but a practical case to be put in the mouth from whence its impression was taken. This will *demonstrate* that it not only looks like a set of teeth, but that it is one, and one that answers the purpose for which it was made.

If our college professors would do away with preliminary instructions under a practical dentist, they must assume to be practical dentists themselves.

Well, we are glad to see signs of improvements in all these respects, and when the term is extended to three years we shall expect to see still greater improvements. This will demonstrate that the extension of the time is not to increase the income, but to give us better graduates, more learned, more skilful, more practical.

Are these Overgrown Microbes.—An Edwardsville (Ill.) exchange reports that a physician of that place was lately summoned to attend a Miss Welsh, an orphan girl, "who had been suffering for some time with severe pains in the head. On examination the doctor decided that the pain was caused by screw worms, or Texas borers, which had located in the head. These worms are developed from eggs deposited in the nose by the Texas fly. They average in size from one-half to three-quarters of an inch in length, and are one-quarter of an inch in diameter. He removed fifty-seven of these worms up to noon yesterday. It is supposed they are all out, and the young lady is doing nicely. This class of cases is very rare, but three having come to notice in Madison county in fifteen years."

Commercially pure aluminum is advertised at \$2 per lb. by a Pittsburg producer.

Pure aluminium melts and becomes fluid at about 1,200 degrees Fahrenheit.—*Ex.*
[Other authors make its melting point about 850 degrees.

Miscellaneous.

Carbon.

GEORGE L. BURDITT.

IN looking over Mendelejeff's table, we find at the head of the fourth series the element carbon. It is one of the most abundant elements, and one of the most important in nature. It is the characteristic element of organic chemistry, where it forms a sort of framework on which the organic compounds are grouped. Indeed, inorganic chemistry is called by some the study of the carbon compounds. Carbon occurs in all vegetables and in some minerals. It also exists in three allotropic forms, as the diamond, graphite, and charcoal.

The diamond is the purest form of carbon, occurring in nature usually in the conglomerate formations. India, Brazil, and the Cape of Good Hope furnish most of the diamonds in use, the Cape of Good Hope mines being more recently discovered. The diamond has probably never been made artificially, tho many attempts have been made. To make one, the carbon would have to be liquefied and crystallized. But carbon is only soluble in melted cast iron, and is infusible; and so diamonds could not be got in this way. Making diamonds from benzole was at one time tried by a Scotch chemist, but with questionable success. In nature they are probably made from some liquid form of carbon, but little or nothing is known of the process. Tho they may be of almost any color, they are usually white, and when entirely free from all color are said to be of the first water, and these are the most valued. However, owing to impurities, they may be gray, yellow, brown, green, red, blue, or black. The rose diamonds are valued highly, and next to them the green.

To heighten the effect of a diamond it must be cut. This is a very slow and tiresome job, sometimes taking many weeks or months to finish. The stone is first clipt off, piece by piece, till it is nearly the required size. It is then fixt on a steel spring, by means of melted lead, and the lead allowed to solidify. This spring is then pressed down till the stone reaches a swiftly-revolving steel wheel, on which there is a quantity of diamond dust, called "bort." By the constant grinding of the stone against the bort, a smooth plane or face is formed. And this is what is meant by diamond cutting. The operation must be repeated for each face. The commonest forms after cutting are the rose and brilliant. The diamond is the hardest substance known, but is quite brittle. Besides its extensive use as a gem, it is used for cutting glass and in making diamond drills for boring rock. Quartz is hard enough to scratch glass, but the diamond point is more curved than that of quartz, by virtue of which it gives a cleaner scratch, and so is always used. Diamonds do not occur to any extent in the United States, tho small ones have been found in North Carolina.

The second allotropic form of carbon is graphite, sometimes—but wrongly—called blacklead. It is found principally in Siberia, Cumberland, and at Ticonderoga, where it occurs as lumps between layers of slate. It is of a grayish-black color; soft, greasy, and has a metallic lustre. It can be made artificially by dissolving carbon in melted cast iron, and treating the product with dilute hydrochloric or nitric acid to remove the iron. Owing to its high fusibility, it is used in making crucibles for melting substances which require great heat. It is also used with oil as a lubricator; also in electrotyping. Its most important use is in making pencils. The graphite is crushed fine under water, on top of which it floats off through a series of tubs, each a little lower than the one before; and in this way the fine powder is separated from the coarser. Pipe clay is then added to it, and enough water to make a paste about as thick as cream, and this is ground till the substances are perfectly mixt. For hard pencils, more clay is added; for soft, less; medium hard pencils contain about seven parts of clay to ten of graphite. After grinding, the paste is put into canvas bags and pressed till all the water runs out, leaving a thick dough. This dough it then put into an iron cylinder with a tight-fitting piston. In the bottom of the cylinder are holes the size and shape of the lead desired, and through these the dough is slowly forced by the descending piston, coming out in long strips. These strips are then cut into the proper lengths, baked, and put into their wooden cases.

The third or amorphous form is represented by charcoal. Charcoal is made by burning wood in a limited supply of air. Sticks of wood are piled up into a round heap, with a small hole in the center for a chimney. Another hole runs from the chimney to the outside of the pile, so as to give a draught. The whole pile is then covered with sod and earth. The wood is lighted through the chimney, and chars slowly till it is all converted to charcoal. The time required varies from one to three weeks, according to the size of the pile. The best quality of charcoal is made

by heating wood in iron cylinders. When made in this way, some other valuable substances—such as wood alcohol, etc.—are also formed, which run off as liquids and are collected. This kind of charcoal is used for gunpowder. Charcoal is black, lusterless, soft, and smutty. It has no crystalline form, but retains the internal and external forms of the tree from which it is made. While the wood is in the pits charring, the walls of the wood cells become charcoal, but the matter within the cells is driven off. This makes the charcoal very porous, and it absorbs air to such an extent as to float on water. Charcoal has a strong tendency to condense gases on its surface. It acts on different gases to different degrees, but most readily on ammonia and sulphureted hydrogen. It is also used to absorb coloring matter in bleaching colored solutions; but boneblack—a sort of charcoal made by burning animal bones—is better for this purpose. Brown sugar is turned into white sugar by running it through a layer of boneblack from twenty to thirty feet high.

Lampblack is made in much the same way as charcoal, only no wood is used. Heavy oil of tar or natural gas is burned in a close chamber, at the top of which is a tight-fitting iron dome. The oil is lighted, and burns with a smoky flame, giving off small particles of carbon, which are condensed on the sides of the chamber into lampblack. When the process is finished, the dome descends and scrapes the lampblack off. It is tolerably pure, is very black and permanent, and can be advantageously used in making paint, blacking, etc.

The question may sometimes arise: How do we know that these allotropic forms are really carbon? The proof is, if we burn twelve parts of carbon, it will give forty-four parts of carbonic acid gas—and this is the case with each of the three forms.—*Pop. Sci. News.*

Strange Use of Paper.—Paper is now made to serve for steel and iron. When a strong fibre is used, it can be made into a substance so hard that it can scarcely be scratched. Railroad car wheels are made of it, more durable than iron. A store in Atlanta, Ga., has been built entirely of paper. The rafters, weather-boards, roof, and flooring are all made of thick compressed paper boards, impervious to water. On account of the surface of the paper being smooth and hard, it cannot catch on fire as easily as a wooden building. It is found warm in cold and cool in hot weather. The Breslau fire-proof chimney has demonstrated that cooking and heating stoves, bath-tubs, and pots, when annealed by a process that renders it fire-proof, becomes more lasting than iron, and will not burn out. Cracks in floors around the skirting boards or other parts of a room may be neatly filled by thoroughly soaking newspapers in paste, made as thick as putty, and forced into the cracks with a paste knife. It will soon harden, and can be painted. And an Italian monk has succeeded in constructing an organ where the pipes are made of paper pulp. It has 1,400 pipes of various sizes. In addition to the utilities cited, a new mill for the manufacture of paper from moss has been recently established in Sweden. Paper of different thickness, and pasteboard made of it, have already been shown, the latter even in sheets three-quarters of an inch thick. It is as hard as wood; can be painted and polished, and has all the good qualities, but none of the defects of wood. The pasteboard can be used for door and window frames, architectural ornaments, and all kinds of furniture. The ceiling of the assembly chamber at Albany, N. Y., is made of papier-maché. It is a model of its kind, and appears so like marble as to deceive the most expert eyes. The latest idea is to use paper instead of wood for lead pencils, by using a patent preparation by which it can be cut as easily as the softest wood.

Monstrous Power of Sea Breakers.—From experiments made last month at Rock and Skerryvore light-houses, on the coast of Scotland, it was found that while the force of the breakers on the side of the German Ocean may be taken at about a ton and a half to every square foot of exposed surface, the Atlantic side throws breakers with double that force, or three tons to the square foot; thus, a surface of only two square yards sustains a blow from a heavy Atlantic breaker equal to fifty-four tons. In March of this year, a heavy gale blew for three days and nights at Skerryvore, washing out blocks of limestone and granite of three and five tons weight, as easily as if they had been empty egg shells, in some cases throwing them entirely over the breakwater at Plymouth. Over three hundred tons of such blocks were washed three hundred feet up the inclined beach, after being thrown over the breakwater and scattered about in various directions. One block of limestone, estimated to be of fifteen tons weight, was moved over one hundred and fifty feet from a place in the surf, where it had been firmly grounded since 1857, it having first been rolled in sight by the awful gale of the "Windy Christmas" of that year. This is quite a high sea record for 1890, showing that the gale of March 3 was the worst known on the Scottish coast for one hundred and ninety-three years.—*St. Louis Republic.*

Sand Bags a Convenience.

THE sand bag is invaluable in the sick room. Get some clean, fine sand, dry it thoroughly in a kettle on the stove. Make a bag about eight inches square of flannel, fill it with dry sand, sew the opening carefully, and cover the bag with cotton or linen. This will prevent the sand from sifting out, and will also enable you to heat the bag quickly by placing it in the oven or even on top of the stove. After once using this you will never again attempt to warm the feet or hands of a sick person with a bottle of hot water or a brick. The sand holds the heat a long time, and the bag can be tucked up to the back without hurting the invalid. It is a good plan to make two or three of the bags and keep them on hand ready for use at any time when needed.—*The Nightingale*.

Gum ghatti, being the subject of a paper by C. F. Henry, is said by him to produce a mucilage of bland and not unpleasant flavor. Only 75 per cent of the gum is soluble in water, even with a boiling temperature. The residue increases considerably in bulk, however. A 1-3 mucilage is of greater density than a B. P. mucilage of gum arabic, and possesses much greater adhesive properties. As regards cost, an ounce of ghatti gum produces about twice as much mucilage as a similar amount of acacia and at one-twelfth its cost.

A New Compound of Phosphorus.—Professor T. E. Thorpe, the well known chemist, has discovered a new compound of phosphorus (P_4O_6), which takes the form of acicular crystals, melts with the warmth of the hand, and glows under the same conditions as phosphorus. It burns readily in oxygen and chlorine, and forms a new compound with ethyl alcohol.

Falling Out of the Hair.—Dr. E. Besnier, *Jour. de Med. de Paris*, states that the alling out of the hair may be checked and a new growth started by the following treatment. The hair should be cut short and a mild sinapism or rubefacient applied to the scalp, then every five days the following lotion is applied :

Rx. Acid. acetici,aa. q.s.
Chloroform.....
M.

The above should be used cautiously, as it is an irritant and stimulates the hair powerfully. In connection with the above, the following pomade should be used :

Rx. Acid. salicylici.....gr. xv.
Sulph. precip.....dr. jss.
Vaseline.....dr. v.
M.

This pomade should be applied fresh every morning, the scalp having been previously washed. Fatty substances retard the growth of the hair and should not be used.—*Weekly Med. Rev.*

Earache.—Take five drams of camphorated chloral, thirty parts of glycerin, and ten parts of the oil of sweet almonds. A piece of cotton is saturated and introduced well into the ear ; and it is also rubbed behind the ear. The pain is relieved as if by magic, and if there is inflammation, it often subsides quickly.—*Times and Register*.

Catarrh Snuff.—Take of boracic acid, naphthalin, aa 4 dr. ; camphor, extract violet, aa 2 gr. ; essence rose, q. s. to perfume. Mix. Take a small pinch and snuff well up each nostril, then cleanse the passages by blowing well and thoroughly, after which use the snuff freely, drawing well back into the posterior nares.—*Ind. Pharm.*

To kill blue grass growing between bricks around the lawn, wash the bricks with salt water or strong solution of soda.

For Pin-worms use a weak solution of carbolic acid in water, 3 to 5 per cent, injecting a small glass syringeful in the rectum once or twice a day. This brings them by thousands.

Quinsy.—In the early stages of quinsy chloral hydrate is nearly a specific, three or four grains to the ounce of glycerine being used as a gargle. It is locally antiseptic, astringent, and sedative.—*Med. Record*.